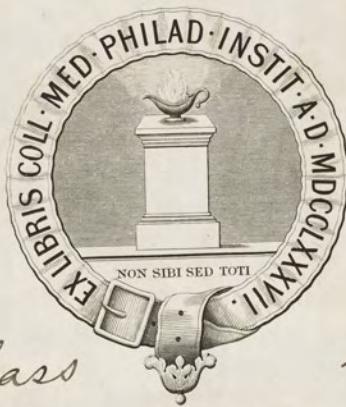


*M. Kuhle  
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Writings

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Lectures  
on the  
Materia Medica

by  
F. Kuhn. M.D.  
Medicinae Theoria Praxeosque Professor.



# 1

## Introductory Lecture.

Gentlemen.

No Study is more interesting to the mind of Man, no knowledge more important than that of Medicine. Of all the goods of life, health is the most desirable. It is the Soul which animates every enjoyment. Without it beauty fades & Youth loses its Vigor; & a man will starve at the best Tables when surrounded with the greatest delicacies. When deprived of it a Person becomes poor & wretched altho' posseſſed of the greatest Wealth even a slight degree of Disease under Riches Tastefull & Crowns them selves a Benſthen. Painful Diseases level all Ranks; they make no difference between the Prince & the Beggar: a Fit of the Stone or the Cholic puts a King to the Tort & places him upon an equality with the meanest of his Subjects. Since the Evils caused by disease are so great Man must conſtructly have been desirous of attaining health, guarding against

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Sickness & restoring his injured frame to a vigorous State.

From hence we need not be surprized that Aesculapius who was considered as the Inventor of the healing art, had Statues erected to his Memory, was called the Son of Apollo; had Temples consecrated to him & was honored as a God.

But we cannot consider any Individual as the Founder of this Science. It is probable yet from a slender & imperceptible Beginning, by the successive Labors of ages it was brought at its present State of Perfection. It may be of Advantage to trace its Origin at least as far as regards our present Subject.

It is not to be doubted but that in the first Ages of the world Man would be anxious to guard against Disease & endeavor to remove those with which he was attacked even at that early period. This laid the first foundation for the Arteria Medica by which is meant that Branch of the Science of

Medicine which treats of the Substances made  
use of in Diet & Medicine -

This Knowledge in those Days must have been very much confined; it has been brought to its present State of Perfection & almost all Medicines discovered either by Accident, Instinct or promiscuous Experiment. -

By Accident we mean the Discovery of Medicines undesignedly made; like what we are told by the celebrated Mr Geofroy of the Peruvian bark viz. that a Number of the Trees being blown into an adjacent Lake gave such a bitter Tincture to the Water that neither the People nor the cattle could use it, untill at length an Indian urged by severe Thirst in an Intermittent Fever eagerly took two or three large draughts which cured his Disorder & gave such Repute to the Waters that they were soon exhausted & when the lake filled by the next Rains & was found without its Bitterness & Virtues it was justly concluded that they both arose from the macerated Trees which had formerly

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been blown into it. Thus to more accident the  
World owes the Discovery of one of its most so-  
vereign Remedies & probably had it not been  
for this Accident we should never have been  
made acquainted with its Virtues.

By Instinct we mean that Discretion which  
in different degrees is diffused thro' all ani-  
mals directing them to chuse what is good &  
avoid whatever is evil or destructive to them.  
This faculty is possessed by Man in a superior  
Degree, thus we find that Children & Chlorotic  
Girls whose Stomachs abound with an Acid,  
swallow greedily Chalk Ashes & other things  
which will neutralize & correct this Acidity.  
Persons labouring under tertian Disorders  
have a great Aversion from & cannot bear  
the Sight of Flesh & eagerly desire Acids &  
other Substances which have a Tendency  
to remove the complaint.—

By promiscuous Experiment we intend Re-  
medies found by hasty & indiscriminate trials  
not pointed out by Reason nor Instinct. In

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this way many valuable Remedies have been discovered.

Medicine like all the other Arts & Sciences was much improved by the Greeks. They had a custom of exposing their Sick in the Market places & Highways for the Inspection of Passengers who recommended what they had known to succeed in similar Cases. If the sick man recovered it was considered as an indispensable Duty to hang up a Bronze Tablet in the Temple of Apollo or Asclepius the Patronus & Gods of Physick. On this Tablet was written the History of the Disorder under which they had labored & the Remedies by which it had been removed. The Remedies were by those means increased beyond all conception & their various combinations became boundless from the Accumulation of Ingredients. This practice was certainly productive of great Disadvantages as in crowded Compositions there must frequently be a discord between the Ingredients & from the accumulation the Virtues of the most powerful Ingredients were obstructed by the Number of

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inut Substances with which they were combined. This was carried to an excess in the Composition of Antidotes which when taken into the body were to prevent the Effects of any future poison. To this we owe those enormous compositions the Theriaca & Hithridate compositions which have destroyed more lives than the Sword of an Alexander or a Caesar. They entirely banished all Esteem for Simplicity Effectually checked the Progress & prevented the Improvement of the Science. All their Emulation was in Dexterity to enlarge these superfluities first by the Greeks & afterwards by the Arabians.

When Learning was introduced by the Arabs into the West of Europe the most profound Superstition reigned under this baseness of Spirit no improvement was to be expected. The only method by which Men of Genius could display their Talents was in commenting upon the Philosophical Systems of the

Antients which were invented to throw Light upon Subjects they did not at all understand & thus they employed themselves for several Centuries. The Introduction of Chemistry instead of diminishing increased the Evil. To this we owe the Elixirs & other ridiculous & trifling compositions.

Physicians were at this time divided into two Sects viz. the Chemical & Galenical between which there were continual Controversies & the same blind Submission was still paid to the Authority of Masters whom they had imposed upon themselves.

When Learning again began to shine forth in the fifteenth Century from the Darkness in which it had been long involved Physicians became anxious to acquaint themselves with the knowledge of the Antients. They therefore collected the History of Simples from the writings of Dioscorides & Theophrastus. But here they met with unextinct Difficulties. & from the imperfect Descriptions left by the

8 Antient it is in many cases absolutely impossible  
to ascertain the Substances they made use of  
2dly they were not sufficiently acquainted  
with Natural History to know that the  
Plants of Greece differ exceedingly from those  
of the Western parts of Europe. These Cir-  
cumstances served as a Boon of contention  
for some time, many virtues were ascribed  
to plants without the smallest Shadow  
of Reason. —

The erroneous & Superstitious Opinion that  
Planets have an Influence upon plants  
proved the Cause of introducing insignifi-  
cant & ridiculous Substances into the Mater-  
ia Medica & almost all the efficacious  
ones were at the same time banished. All  
the Writings on the Materia Medica were  
Compilations from the Antients much de-  
ference therefore should not be paid to them.  
This Ignorance appeared in nothing more  
evident than in their crowded Compositi-  
ons. Lord Bacon justly calls a great Da-

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vity of Medicines the Offspring of Ignorance  
Not fewer Errors have crept into the Natura  
Medica from false Theories than, if I may be  
allowed the expression from false ~~the~~ facts  
Look into practical books & you will find gd  
virtues attributed to Substances entirely or  
nearly inert An Instance or two will tend to  
elucidate this. E. g. What great qualities has  
Sour attributed to crude Mercury How has  
Boerhaave extolled the Virtues of Adia gra-  
minis Substances which we now know posseps  
very little if any Virtue at all To avoid these  
Errors I shall divide my Subject under the  
four following heads. Viz.

1. The knowledge of the Substances employed in  
Diet or Medicine & their Distinction from all others
2. Their Virtues in Diet or Medicine.
3. The foundation of these Virtues in their sensible  
Qualities or Chemical Properties.
4. Their Pharmaceutical Treatment or their ar-  
tificial preparation for the purposes they are

intended to answer with the compositions into which they enter & the property of combination together with the dose in which it is to be given in order to produce its intended effect.

As to the first the substances are either natural or artificial: The knowledge of the former must be obtained from Natural History & of the latter from Chemistry. A knowledge of Natural History is certainly of great use to the Physician. Had the Antients been acquainted with it they would not have been engaged in so many disputes as they were. The Second head as it is by much the most essential so it will by far obtain the greatest part of our attention in the following course.

Under this head we will 1<sup>st</sup> endeavor to ascertain the general Virtues of the Substances & the Indications they are fitted to answer. 2<sup>nd</sup> We shall mention the Diseases they are employed to cure the circumstances which point out their use & the cases in which

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they are contraindicated. 3<sup>d</sup> their manner  
of Operation & the Diseases in which they are to  
be administered. Under this head we shall  
describe the particular Diseases in which  
they are to be taken, distinguish them by  
characteristic Symptoms from all others &  
point out the Indication & the general prin-  
ciples upon which a cure is to be attempted.  
As to the third head we shall examine the foun-  
dation of their Virtues in their sensible Quali-  
ties & Chemical Properties. This is the only  
Method I know to form a proper Judge-  
ment of the Virtues of medicines. By these  
means we may be enabled to discover the  
Virtues of some Substances that would other-  
wise be hid from us. Thus before the time  
of Dr John Pringle many Substances were  
supposed antiseptic which he, by his expe-  
riments proved Septic - thus calcareous &  
absorbent Earths were formerly used in the  
Dysentery upon a Supposition of their being

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antiseptics, nay they are even prescribed to  
day in this Disorder, tho' they can be of no ad-  
vantage & by increasing the Putrefaction  
may become prejudicial. —

Under the fourth head we shall consider their  
pharmaceutical Treatment & the Compositions  
into which they enter with the propriety of their  
Combinations.

From hence you see that this Science is of the  
utmost Importance to a Physician. It is the  
only Criterion to judge between a regularly  
bred Physician & an illiterate Quack. The  
Quack sometimes cures disorders by his Medi-  
cines but he is not acquainted with the man-  
ner of their Operation nor the Reason why  
they are indicated. He who gives a medicine  
the operation of which he does not understand  
nor does not enquire into the Qualities on  
which its Virtues depend, is at best but an  
ignorant pretender to Physick. Van Scov-  
en says it is scandalous for an artificer  
to be ignorant of the Tools with which he

operates & the same may be said of a Physician who is not versed in the Materia Medica. he will be exposed to ridicule from his absurd Compositions.

The Gentlemen who practise the healing art in this Country have another Incentive to animate them to pursue this Knowledge. We have reason to believe that Nature has supplied every country with Remedies for the Diseases that are peculiar to it. It would be denying the Goodness of the Supreme Being to doubt of this had we not sufficient Reasons otherwise to convince us of the Truth of it. A few Instances will place the matter beyond all Possibility of Doubt. The Goodness of the Deity appears in nothing more remarkable than in having provided Antidotes for the bites of venomous animals. Thus in India where the Naja is the most venomous Serpent the Natives have not only an antidote in the Radix Ophiorrhiza but also the Ichneumon or Mungos which attacks it wherever he finds it

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If bitten by the Serpent he has immediate recourse to the Ophiocordia which the Natives also use when bitten & always with Success when applied in time. In this country where the Rattle Snake is the most venomous animal we have many powerful Antidotes amongst which is the Pinekax Snake Root. The Lius Vinrea was not known in Europe before the Discovery of America & it is generally allowed to be endemic to the Natives of this Continent & they have a means of curing it speedily without the use of Mercury. They employ the Lobelia & Ceanothus. Not many years ago a Root was discovered in the Southern parts of this continent which is said to be superior to the Bark in some things & inferior to it in nothing & is peculiarly adapted for the putrid Disorders which are prevalent in those parts. —

Let us reflect that the Salap, Pher

cacuana the Peruvian Bark & all the  
richer Balsams are the productions of Amer-  
ica & it is not probable that indulgent Na-  
ture has confined all her valuable Produc-  
tions to one part of this Continent. We know  
that the Indians of N. A. cure many Diseases  
to which they are obnoxious by simple Rem-  
edies as effectually as if they were acquainted  
with the most costly Artificial ones & they  
are perhaps happy in their Ignorance of those  
Substances. It is our Duty to inquire into the  
Remedies by which these cures are performed.  
To animate us in our Enquiries we may ob-  
serve that new Remedies are daily discover'd  
Within these few years there have been added  
to the Stock of the Materia Medica the  
Radix Quassia the Columbo-Root the bu-  
rum ammoniacum Very lately the  
Flowers of Lin, Medicines of the utmost  
utility in the Cure of many Diseases inci-  
-ant to the human Frame. —

There is no doubt but that N. A. contains many capital Remedies. The knowledge of the Virtues of Remedies is to be obtained only from the Natives of the Country in which they are produced which are afterwards to be established by repeated Observations. This has been the practice in every Country & it is our own fault if we do not employ it here. There is no doubt but in this Way many valuable Remedies for the Preservation of health & the cure of Diseases may be discovered & it is our duty at least to attempt it. Perhaps it may be the good fortune of some one of us to discover a Medicine equally efficacious w<sup>t</sup> the Powwian Bark in the cure of diseases. Any person who should make such a discovery would do more service than the founder of Hospitals & would be entitled to more eminent Distinction as a Benefactor to Mankind. —

# Lect: 1.<sup>st</sup>

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A commendable Curiosity has at all Times excited Persons to make themselves acquainted with the Origin, Rise & Progress of the Science in which they intend to become Proficients. No Science deserves more Attention in this Way than that of Medicines; for it has always happened that Physicians have given Laws to their fellow Men and that great Names have stamped a Value upon Opinions which they by no Means deserved. In giving an Account of the several Persons who have been eminent in this Science we at the same time acquire a Knowledge of their Theories; What therefore in other Sciences is a Matter of mere Curiosity is here of the utmost Utility. To make you acquainted with the Theories which have prevailed in Physick is my Motive for devoting this Lecture to the History of it -.

Some useful Arts have their Origin &c in vented & placed beyond the Reach even of Tradition; some have crept into Existence without an Inventor; some at the dressing of Food & that of Clothing which at the Beginning required some Art must have been coeval with Man. But the busy Minds used to a Beginning in everything rests not till it finds, or imagines, it finds some

some Persons to whom it may ascribe the Invention of each Act; Thus we know that Bacchus is said to have invented the Art of making Wine. The Bow and Arrow is said to owe its Origin to Scythus a Son of Jupiter tho' it is a Weapon used in every Country. Even Spinning on Account of its great Utility has had its Origin ascribed to several remarkable Persons thus the Egyptians ascribed it to their Goddess Isis - the Greeks to Minerva the Peruvians and to Cella & the Chinese to Yaldo.

I give you these Instances to show how similar Opinions are in uncultivated Countries and how little Tradition is to be relied on. Medicine has likewise been attributed to Divine Origin and with equal Reason.

It is not at all probable that one Person should have made such Progress in Physic as to deserve the Name of an Inventor of it. It is by the successive Labors of Persons that Acts are produced. We will rather suppose that Medicine is in one Respect coeval with Man. Ever since Mankind have been in the state in which we now find them they must have been subject to various Diseases & liable to pain and Sickness occasioned by the Inclemency of the Air, Excess of Diet &c<sup>a</sup> though in a much less Degree than we are now on Account of their Simplicity of Life. But they

must

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must always have been more particularly liable  
to external Injuries which would require manual  
aid - A Cure would be attempted - Many Things would  
perhaps be tried at Random. In many Diseases there  
is a natural Instinct for many Things that give Re-  
lief - some Diseases would be cured by Nature -  
People would observe all these & apply them in similar  
Cases, hence the Origin of Physick.

The Babylonians and other Nations exposed their  
Sick in the Highways to the Passengers who were reque-  
ted to examine their State by which they could know  
whether they had ever seen Persons in the like Condition  
Discover those Remedies that they had Known to be  
of Use in like Cases. Many of those that recovered hung  
up Tablets in the Temples of Aesculapius specifying  
the Diseases they had laboured under & by what  
Means they had recovered. Long Life & a large Fam-  
ily would render a Man capable of Improving in  
the Knowledge of Physick. Familiar Humanity and  
grateful Returns might contribute in encouraging  
a Man to make more accurate Observations in  
order to be more beneficial to his Neighbors.  
The same Motives might exite him to transmit  
his Knowledge to Posterity, as indeed he Knows  
to have been the Case & Medicine to have been con-  
fined for length of years to certain Families.

20 But still the natural Physick, if I may be allowed  
the Expression, made no great progress untill it was  
cultivated as a regular Science & carried from one  
Hall into another - thus Greece received it from  
Egypt, Rome again from Greece.

The most ancient regular accounts of Medicine  
we have from Egypt - these are obscure & depre-  
tive. We have an obscure account of Hermes Tris-  
megistus who is reckoned the father of Medicine,  
& Philosophy of Egypt. He laid down several  
Rules which his Superiors in Medicine were  
obliged to follow under pain of Death. He en-  
joined that one Person should not presume to  
prescribe in different Disorders but confine  
himself to one or pain of being put to Death  
in case the Patient died. These Regulations  
were calculated to prevent Mischief but  
they were a great restraint on Science. They  
might indeed answer in manual Operati-  
ons where great Accuracy is required but  
not at all in internal Diseases as it would  
lead to the highest Degree of Empiricism  
& yet Analogy is sometimes necessary even

in Empiricism.

From Egypt the Arts & Sciences passed into Greece. Here the priests of Esculapius were chiefly intrusted with the Sick who were usually brought to the Temples to consult the Deity.

And it was thought the Priests had the cures revealed to them in dreams, from which we must conclude that a great deal of Priestcraft was connected with it. But some of the Priests soon became Clinical Physicians but the exact time is difficult to ascertain. They seem to have been particularly attentive to prognosis. All the writings & records of Physic were kept in the temples & these were at the same time the Schools of Physic some of which became very famous as Rhodes, Creides, Cos, Crotona &c.

This was the State of Physic until the time of Hippocrates who was the fourteenth in lineal Descent from Esculapius. He flourished 458 Years before Christ & died at 104 years of age.

one Year before the birth of Alexander the Great  
 & 200 years after Sciences began to flourish in  
 Greece and when Socrates & his disciples had brot.  
 the Sciences to their highest pitch in y<sup>t</sup> Country.  
 He was born & bred in Thessaly remote from  
 Athens at that time the Seat of Literature and  
 where a moderate share of Ability, would secure  
 to him great Fame; which, if no Material Revo-  
 lution happened, might by his Disciples & concur-  
 ring Circumstances be raised to such a height  
 as to make succeeding Ages look on him as a  
 Prodigy. If the writings imputed to him are all  
 taken together they appear absurd & ridiculous  
 but select them we find Observations made  
 with Accuracy & sagacity. From hence we are  
 led to imagine that many of the writings which  
 go under his Name are not really his but the  
 production of some inferior Personages who  
 to make them better received published them  
 under his Name.

This Fame would have been of short dura-  
 tion had not Galan been at Paris to explain  
 many of his obscure passages and to hold him

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up as a Prodigy. He was the Author of the Dogma-  
tists. His Doctrine was followed until Philinus  
of Cos & Serapion founded the Empiric Sect who  
rejecting all Reasoning were for trusting solely to  
observation History & Analogy in the Cure of Dis-

We may observe that these Empirics were very  
different from the Empirics of our Days who only  
have their Dullness Craft & Laziness under the  
specious Name of Empiricism. It certainly requi-  
res as much time to study Empiricism properly  
as to become a Dogmatist.

From Greece the Arts & Sciences with Physic  
in their Train proceeded to Rome. We shall consider  
in few Words the Rise & Progress of Physic in Rome.

It is well known that those Men who founded  
the City of Rome were a Sett of Barbarians and  
Robbers & at the Beginning were engaged in conti-  
nual Wars with their Neighbours, neglecting all  
Sciences. Now could it be expected that Arts and  
Sciences would thrive in such a State. Pliny tells  
us that Physic was not practiced in Rome for 600  
Years after its Foundation & at this time we find  
that the Censor prescribing Incantation for the  
Cure of a fracture Leg. But sometime before

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this the Asculapian Superstition had been introduced by the Priests who had Temples near the Tiber as appears by some Medals handed down to us. Archagathus came to Rome 533 years after the building of the City. He was a great Surgeon and was at first received with Favour but lost it soon & was banished with all the other Greek Physicians according to the Acto<sup>4</sup> of some. This perhaps was owing to the manual Operations to which all uncivilized nations have a great Antipathy.

Asclepiades was the first Greek Physician who came to Rome after Archagathus. He professed to cure, cito, tuto et juuinde. He was very compliant denying the Patients nothing that they desired - he took care not to increase the Disorder by overloading the Patient with Physic. He succeeded surprizingly by his specious Manners, Boasting & easy Physic - and no Wonder for we find them succeed even at this Day - He was the Author of the Methodic Sect -

These different Sects were swallowed up

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upon the Appearance of Galen who we must allow  
to have been a Person of great Merit, but his Fame  
was owing rather to a Chain of Accidents than  
peculiar Worth. Nico the Father of Galen was a Man  
of Wealth & Literature & ~~Gave~~ him an Education  
formed on a general Plan: After the Study of Philo-  
sophy he comonenced that of Physic which he pro-  
duced under several Masters by which he had  
the Advantage of learning different Opinions —  
to all this he joined Travelling: He was peculiarly  
solicitous to increase the Materia Medica and  
was very curious in anatomical Researches.  
Thus possessed of all the Learning requisite to  
make a Physician he repaired to Rome the  
Capital of the World, where he found many Phy-  
sicians all engaged in acquiring Practice by  
the usual Means, extolling themselves & decrying  
their Rivals. It was his Fate not to succeed, there-  
fore after staying four or five years he returned to  
his native Country, Pergamus. He had however gained  
the Favor of some Men of Science & recommended him-  
self to the Patronage of some of the highest Class —  
He was afterwards recalled by Marcus Antonius

and Lucius Verus where he acquired the greatest Esteem of the Emperor & what was of greater Consequence the Empress Faustina. She was of the Sect of Dogmatists and established their Principles by his great Reputation high Rank and great Authority by which he suppressed all the other Sects. He wrote 500 Volumes which he so connected as to form a compleat System of Medicine.

In this Interval the Roman Empire in the West was over-run & entirely ruined by the Goths & the Barbarians of the North & all the Arts & Sciences or rather their Remains fled into the East where they continued some time.

In the seventeenth Century of the Christian Era Mahomet arose & over Singular part of the East took & destroyed Alexandria & as the Saracens or Mahometans were equally enemies to Literature with the Goths they destroyed the Library at Alexandria, which at that time contained almost all the Learning of the East.

The Arabs neglected all learning untill the reign of the Caliphs of the race of Abasfoidas when Learning began again to be encouraged & by whose means the Greek Authors were

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translated into the Syrian & Arabian Languages.  
The first Books they got were Aristotle's & Galen's.  
They were servile Imitators of Galen & did nothing  
but comment upon his works. They neglected Ana-  
tomy from an Aversion to touch dead bodies en-  
joined upon them by their Religion which is pecu-  
liar to all the Eastern Nations. They contributed  
little or nothing to the improvement of Medicine  
except by adding such new diseases as were pecu-  
liar to their Country with the Remedies useful  
in them, as the Small Pox, which was first  
written upon by Rhazes in the tenth century  
& was not known in Europe untill the Insti-  
tution for the Cruissades for the Recovery of the  
Holy Land. With several Diseases they added  
the Syrups to the Materia Medica for before  
this Time Honey was used for them. They  
made some improvements in Surgery which  
must always happen in manual Exercises.  
The Arabians brought Learning again into  
Europe; first into Spain where they established  
Schools from whence Literature was spread  
allover Europe. This was at the end of the  
eleventh & at the beginning of the 12<sup>th</sup> centuries

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of which that at Salerno was the first. Medicine  
was here taught upon the Galenical Plan: And  
here the Schola Salernitana was published,  
by which we may judge of the State of Lear-  
ning at that time.

In the Beginning of the fifteenth century,  
Science began to shine forth in its Native Landes.  
In 1453 Constantinople was taken by the Turks  
which occasioned all the Men of Learning to  
come to the West who brought with them all  
the valuable Manuscripts & Learning of the  
Antient Erected Schools. In 1460 the art  
of printing was discovered by which the works  
of the Antients were made publick & thus the  
Increase of learning & Advancement of the  
Sciences were much promoted. Men soon dis-  
covered the Superiority of the Antients & applied  
to their Works.

Chemistry was till then little employed in Physick  
It was entirely in the hands of Alchemists &  
Quacks who made some trifling Improvements.  
The Laws Printed about this Time first made

its appearance which was to be conquered by Mercury only - Antimony had not long been known. The Arts & Sciences now made a great progress.

Medicine however did not increase so fast as the other arts. The Doctrines of Galen continued to be followed until Paracelous appeared on the Stage. He was the author of the Chemical Sect his Doctrines lasted about 100 years. The most considerable of his followers was John Baptista Van Helmont who was a person of great learning but a wrong headed enthusiast. To him belongs the merit of having exploded the Doctrines of Galen but he unhappily substituted his own worse ones in their stead. He rejected Bloodletting & prescribed the hot Regimen in Fevers & at length fell a sacrifice to his own Theory. He died in the 46<sup>th</sup> Year of his Age of a pleurisy because he would not submit to be bled in it.

The Scholastic Philosophy at this Time still prevailed altho' the great Bacon flourished who taught that the true Method of improving Philosophy was by Observation. The Discovery of the circulation of the blood

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by Doctor Harvey & of the Lymphatic System  
A Thoracic Duct by Dr Hunter for sometime  
produced no great Alteration or Improve-  
ment in Medicine.

Francis De la Boe Sylvius professor at Leyden  
was a man of an acute Genius & extensive  
Learning. He was well acquainted with Anato-  
mics, Materia Medica & Chemistry. In Syl-  
vius we have an Instance of the Insuffi-  
ciency & Fallacy of human Reasoning for not  
withstanding all his knowledge he fell into  
a wrong Theory. He supposed the Cause of  
Fever to be an Acid & consequence gave  
Alkalies to cure it. No theory that ever existed  
was so productive of Mischief to Mankind  
as it spread universally. If any who were trea-  
ted in this manner escaped they may justly  
be said to have passed thro' a fine Trial.

Sylvius prescribed Opium very freely &  
is said to have died from too great a use of it.  
Sydenham was inferior to Sylvius in E-  
ducation but far superior to him in judge-  
ment & a peculiar Talent for Observation.

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He appears to have been one of the greatest Practitioners  
that ever lived. He had not much Knowledge of Books  
but was well acquainted with the writings of Hippocrates  
and was not a servile Imitator even of him. He is a  
perfect Model of Integrity & Candor. He is erroneous,  
ly said to have no Theory but this is not the Case for  
no practice can exist without Theory. He was indeed  
not addicted to Theory and it is probable never enter-  
tained a Theory after he had reason to doubt of  
its Truth. He gave Opiats fully but judiciously  
& first introduced the Simple Practice. He was  
more esteemed by Foreigners than by his Country  
Men who called him a Quack. He first observed  
that the same Disease in different Circumstances  
required very different Methods of Treatment.

The Mechanical Physicians arose about this  
Time, who considered the Body as a mere Hydraulic  
Machine, never regarding the Mind or Sentient  
Principle but were for demonstrating every Phenom-  
enon on Mathematical Principles, thus forming  
very strange Theories with Regard to the Cure of  
Diseases. They were succeeded by Hoffman,  
Stahl & Boer have each of whom formed a System  
which has numerous Followers even to this Day.

Hoffman was an Admirer of the Mechanical  
System & was well versed in Chemistry. He was

a plain, good-natured honest, candid Man. He is often tedious & first took Notice of the Sentient Principle. He and Stahl were Contemporaries & Rivals and for a long time divided all Germany between them. Hoffman was rather credulous and too fond of his Nostrums, the preparation of which he kept a secret & which he extols greatly and attributes great and cardinal Virtues to them.

Stahl was first raised by Hoffman but soon became the Rival of his Patron. He was a Man of an acute & penetrating Genius. From some hints thrown out by Plato, Dolens Wepfer & others he supposed the Rational Soul to preside over the System. He ascribed the greater part of Diseases to a Pethora and attributed all Crises & the like Efforts of Nature to a Rationall Soul. From his Notion of Pethora he made great Use of Aloecties to promote Hemorrhoidal Discharge & thereby to diminish that Pethora. He may be consulted to advantage in Diseases arising from obstructed Menses in Hemorrhages & in other Disorders which are owing to Pethora. He was the Head of a numerous Sect

in Germany. His followers were particularly accurate in giving the History of Diseases. He first attended to the Nervous System. —

Boerhaave lived about the same time. Every Branch of Medicine is much indebted to him. He was a Man of incredible Application & solid Genius. He was very eloquent & by that means recommended his Doctrines much to his Pupils. He was attached to no Sect but took what he thought proper from them all & others formed a complete System. He took the Doctrine of Lintor & Ostiæ from Bellini & the Mechanical Physicians; of Acids & Alkalies from the Chemists & of Plethora from Galen. He however entirely neglected the Nervous System: For this some of his disciples have made amends particularly Haller who has very particularly considered the Laws of the Nervous System.

The present System is now complete as it takes in all the parts, tho' by no means perfect. At the Anatomy, Botany & Chemistry seems to have risen nearly to their highest degree of Perfection. Medicine appears at present to

be in a low state.

From this Sketch of the History of Medicine we may learn many important Lessons. We may observe that Systems are of infinite prejudice. They are a refuge for Idleness & are a kind of Common-place-book to which the Indolent may have Recourse on all Occasions.—

Within these 30 years Medicine has made no Improvement except in the Island of Great Britain. There as no man ever arose to such a height as to dictate to his Countrymen, Medicine has been more improved than anywhere else tho' 50 Years ago Britons were inferior in Medical Knowledge to their Neighbours.

We also learn the mischief arising from Theory & false Speculation & that Theories ought never to be admitted but when founded on Facts. ——————

## Lect. 2<sup>nd</sup>

The variety of Sentiments which prevail on the Animal Economy render it necessary for me to give you my Opinion on this Head as it will tend to assist us in accounting for the Operations of Medicine & will enable you to understand me the better hereafter. These Opinions will probably appear new to many of you on Account of their being so different from the Sentiments of the Generality of Writers. I could not wish to influence your Opinions in Preference to your Judgment and I shall endeavour to give you nothing but what appears to me to be both true & of Service in the Practice of Physic.

The most ancient Opinion is that of the Rational Soul presiding over & directing the Animal Function. This Notion was held by Plato, Hellmont, Dollesus, Wepfer & particularly by Stahl. This last as I have already observed was the Rival of Hoffman. He received this Opinion & ushered it into the World with all the advantages arising from extensive Learning & great Genius. He had numerous Followers in Germany & other parts of Europe. In many Places in Germany his Doctrine is still received. Dr. Nichols of London & Doctor Porterfield of Edinburgh are the

only Persons in Britain who have embraced his Opinion.

Stalk'd his Followers from their Notion of the Action of the Soul in General that they might not disturb her in her Operations, employ'd but Weak & trifling Medicines & this will always be the Case with those who trust too much to the Operations of Nature?

Another Opinion is that of Borelli, Bellini Pitcairn & others who considered the Body as a mere Hydraulic Machine & attempted to account for the Operation of Medicines entirely upon Mathematical Principles, the size Figure &c. of the Particles. They entirely neglected the Nervous System which in my Opinion is most to be regarded in accounting for the Operation of Medicine.

The Body consists of three parts vizt the Simple Fibre, the Moving Fibre or Solida viva & the Fluids. By the Solida Viva or Moving Fibres we mean all those parts endued with Sensibility & Irritability. Of these Properties the Nervous Power & Sensitum commune are the Foundation. The Extent of the Nervous Power over the System is very considerable. It is found

in the Muscles of voluntary Motion & wherever  
Muscular Fibres are found, in the Alimentary Canal,  
in the Bronchia & Lungs in the Heart & Arteries,  
in the Glands & Excretaries & in the whole Lymphatic  
& Absorbent System. The simple Fibres & Fluids  
have neither Sensibility nor ~~Taste~~ <sup>Taste</sup>ability.

Much Stress is commonly laid upon the  
Laxity & Rigidity of the Simple Fibres & Medicines  
are generally prescribed to produce a Change in  
them. This is not entirely to be disregarded. They  
seem however to increase uniformly in Firmness  
as the Person advances in Age & I can have no  
Idea of any Disease in old People from this  
Laxity nor in Children from Rigidity. I believe  
it is little in our Power to produce any Change  
in them - if there is any it is from Alterations  
made on the Moving Fibres & must be made  
very gradually - Exercise & Diet will do more  
than all the Medicines we can apply.

Since the Discovery of the Circulation of  
the Blood, Physicians have applied themselves to  
the Hydraulic Mechanical System & have fallen  
into many Absurdities. They have in general con-  
sidered the Secreted Fluids <sup>as a Criterion by which</sup> ~~in general~~ whereas

to judge of the state of the Fluids in General where, as the Apperances of the different Secretions should in general be ascribed to the State of the Secretory Organs. The Augmentation, Diminution and Acrimony of the Secretions have been ascribed to the different State of the Fluids, Urine has in almost all Ages been considered as a Criterion of the State of the Blood: I shall here give you an Instance to show what Absurdities even great Men will be guilty of when they suffer themselves to be led away by wrong Theories.

Huxham speaking of pale & limpid Urine with a Scum as a bad Symptom in Fevers foreboding Delirium supposes it to be owing to a separation of the red Globules and Coagulable Lymph from the Serum & advises Acid & Saponaceous Drinks to be employed to unite more intimately the seperated Portions. Acids are proper to moderate Heat & allay the Thirst, but on a very different Principle from what Huxham supposes. This Separation it is certain could not possibly happen while Life remains. If we ascribe this Appearance to a Spasmodic affection the Kidneys we find that Acids are indeed proper - and we find why it is a fatal Symptom

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from the Spasm affecting the external & internal  
Parts of the Body.

Most Diseases have been ascribed to the different State of the Blood, its Acrimony, Density &c. but in my Opinion these Considerations may in general be entirely disregarded. The State of the Fluids depends entirely upon the State of Solids. Thus in a strong & rigid Habit of Body we find a rich Dense Blood - in a weak, relaxed Habit we find the Blood thin & watery.

Physicians have commonly directed Medicines to be given to obviate the different kinds of Acrimony agreed upon, the Putrid which occurs in the Scurvy. In the Cure however we can do nothing with Medicine without a Vegetable Diet and if that can be procured no further Medicine is necessary. Medicines taken into the Stomach can have no considerable Effect in changing the State of the Fluids as they there suffer the power of Digestion, are converted into Chyle and have their Virtues changed by being rendered mild & inert - I except Saline Substances which are taken up into the Blood unaltered. They are however only suspended in the Serum & pass off quickly by Urine & can never change the Fluids: If we give a large quantity of them they will prove purgative & none will then be taken up

40 up. This is likewise the Case with all those Aromatic Medicines which would have a chance of producing an Alteration in the State of the Fluids. As the Simple Fibres & Fluids are not acted upon by Medicines they must of Consequence exert their Effects solely on the Solida Viva or Moving Fibres which are endued with Sensibility & Irritability which depend on the Nervous Power, Brain and Sensorium commune or Sentient principle.

The Nervous System has a very general Consent over the whole System & that Pain & Pleasure are communicated from one part to another. Thus a locked Jaw is not commonly from a Puncture or Hurt of a Nerve in the Extremities. It is produced by this Consent of one part with another. But tho' this Consent is general yet some particular parts are more liable to be affected than others. I do not pretend to give you all the different Consents for that would be impossible. I only at present speak of one - that of the Stomach which is more particularly to be regarded in accounting for the Operation of Medicines.

Nothing has more considerable Effects on

The Mind than a disordered State of the Stomach  
and the Stomach is likewise much affected by  
the State of the Mind. Thus we see Hypochondriac Persons whose Disease, which is commonly chiefly  
situated in the Stomach produces grievous Effects on the Mind or Sensorium Commune  
or the seat of it, the Head. In Wounds of the Head  
possessious Vomiting of Bile proceeds from a Consent between the Stomach & the Liver. The Stomach has a considerable Consent with the Heart & Lungs independent of the Vicinity of those Parts. The Palpitation of the Heart in Hysterie & Hypochondriae Cases is owing to this Consent and nothing will sooner relieve it than a small quantity of Brandy, Wine, Rum or any other Cordial that will remove the Irritability of the Stomach. I have known the Pulse to beat 140 Strokes in a Minute where the Gout has passed from the Extremities to the Stomach but upon taken any Stimulant as Brandy Wine &c. which would send the Gout back to the Extremities the Pulse would return to its usual State.

Nothing is more common than Indigestion & Acidity producing a Fit of the Asthma

in Persons subject to that Disorder & when  
the Disorder is removed in the Stomach the  
Person is likewise freed from the Asthma  
for a Time. There subsists also a considerable  
Consent between the Stomach & the Extremities  
Thus Persons subject to the Gout often experi-  
ence sudden Transitions of it from the Extre-  
mities to the Stomach & vice versa.

This Disorder never gets into the Stomach  
when it is in a proper State and only affects  
it when relaxed. The Stomach is connected  
with the Surface of the Body & with the small  
Vessels over the whole Frame. This is evident  
from various Considerations. No sooner do  
some Aliments reach the Stomach of Par-  
ticular persons than Spots & Efflorescences  
are produced in the Skin. Van Swieten has  
an Instance of a Person who could not take  
the smallest quantity of Crabs Eyes without  
these Effects being produced. I myself knew  
a Person afflicted with the Hypochondriatic  
Disease who was relieved of his Complaints  
by Pimples appearing between his Thumbs  
& Finger & as immediately oppressed upon  
their retrorepulsion or Disappearing. These  
Apperances are commonly supposed to be

owing to Ucermony of the Fluids, but falsely  
as they are produced instantaneously.

Vomiting from a Constriction of the cutaneous Pores is another Proof of this Consent. This most commonly occurs in the cold Fit of Intermittents where every Body allows the Constriction to take place. Nothing will sooner check this Vomiting than a draft of cold Water, & we find that the same Application will often times produce Sweat more readily than our most powerful Sudorific <sup>st</sup> Diaphoretic Medicines. Diarrhoeas & Dysentries are frequently if not always owing to a Constriction of the Cutaneous Pores & a Suppression of the Perspiration & we can not cure them unless we first restore the Perspiration. These Disorders are most commonly ascribed to a viciated State of the Fluids, but this can not be the Case for if it was they would come on gradually whereas we find them to come on almost instantaneously after Exposure to Cold & are as instantaneously cured.

The Principles of Diseases are not as is commonly supposed Lodged in the Simple Fibres or Fluids. The Fluids may be affected secondarily; but the Cause of most Diseases appears to be placed in the Solida Viva & Sensorium Com-  
mune

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Muscle, which being endued with Sensibility & Irritability are more liable to be affected than the Simple Fibres or Fluids. Thus it is a general practice to a very judicious one to exhibit a Nox in Intermittent Fevers before giving the Bark or any other Medicine to check the fever. The good Effects however do not depend upon the Evacuation of the Contents of the Stomach but entirely on the sudorific & diaphoretic qualities by which the Constriction of the Surface of the Skin is taken off. This is evident from the same good Effects being produced when the Medicine is given in such small doses as not to occasion an Evacuation but only a Nausea. The Bark should never be given before a Determination to the Surface is produced as it can do no good & may do great harm. When Astringents are applied to check Hemorrhages of the Uterus or any distant part they exert their Effects often times before they could possibly arrive at the part by means of the Circulation. When Opium is used to relieve any Irritation as a Cough we find the Person

much easier as soon as the Opium has arrived in the Stomach. It must therefore act on the Nervous System. The Experiments of Dr Monro P. A. & in Edinburgh proved this beyond a Doubt. He instituted his Experiments on Frogs which Animals will live a considerable time without their Hearts. After taking out the heart of a frog he applied Opium to the Muscles of the Leg laid bare & found it exerted its Effects in the same Manner as when the heart remained, that is the Animal was deprived of Sensibility & the power of Motion. He then applied the Sp. C. & C & roused the Animal from the Insensibility into which it had been thrown by the Application of the Opium. Sure the Medicines must surely have acted on the Nervous System as the Circulation was entirely destroyed. —

From what has been said I am inclined to form this Conclusion: that all Medicines exert their Effects on the body by operating on the Nervous System & those taken into the Stomach by being applied to the Nerves of that Organ which are very numerous & not by being taken up into

I hope I shall be justified in making the following Conclusion from what I have said.—

That our body physiologically considered consists of three parts—Solida Viva or Moving Fibres, Simple Fibres & Fluids; that Diseases must be lodged in one or other of these parts; that the Moving Fibres from their Sensibility & Irritability are often affected than the Simple Fibres or Fluids; that Medicines at least those which produce strong Effects, act on the Nervous System; that the Laxity or Rigidity of the Simple Fibres is a fixed & constitutional Infirmity & not an occasional Disease to be removed by Medicine; that the Diseases of the Fluids are not so numerous as from looking into Authors we find they are imagined to be & when they are affected they are rather to be changed & restored to their healthy State gradually by mild Remedies & Diet.

Lect. 3.<sup>rd</sup>

The Materia Medica comprehends all the Substances made use of in Diet & Medicine. The Pharmaceutical branch has been commonly thought to be whole that belonged to this Subject, but surely Dietetic part deserves a place as well as that more strictly termed Medicinal, as the Cure of Diseases often depends as much on a well regulated Diet as upon the Exhibition of proper Medicines.

The Books that are best calculated to assist us in our Inquiries upon this Subject are the following Lewis in his Materia Medica, & the New Dispensatory has given us something useful, but they are to be considered as loose disjointed Materials than a proper System of Materia Medica; he follows the Alphabetical Order by which means his Subject is so interrupted that it is impossible for the Reader to follow him regularly & he is therefore only fit for occasional Consultation. Geoffroy has first divided the Substances as got from the three Kingdoms & in the Vegetable he again divides them according

48 to the different parts of the plants made use of  
as Roots Herbs Barkes &c But in treating  
of Individuals he has fallen into the same  
Errors & is liable to the same Objections  
with Lewis.

You are to observe that his first & second Volumes  
are much preferable to the succeeding ones for  
these were published under his own Inspection  
the others were published after his Disease from  
erroneous Notes of his Scholars which often  
contain Sentiments quite contrary to his real  
ones.

The celebrated Linnaeus has followed the Bo-  
tanical Order in describing the Virtues of  
Substances belonging to the Materia Medica  
but tho' Plants of the same Order & Genus are  
frequently found to correspond in Medical  
Virtues yet as it does not hold universally  
it is liable to Exceptions.

Cathcart's Plan is less exceptionable & prefer-  
able to any other. He ranks them according  
to their sensible qualities by which means  
you have a Number of Substances connected

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which correspond in Medical Virtues. But this Plan is not quite Sufficient & he is obliged in many Places to follow Indications in the Cure of Disorders. —

This Plan is also pursued by the celebrated Doctor Neuman. There is no doubt but Bartholinus's plan is the most preferable. He distributes the Medicines according to the Indications they answer. & thence infers their utility in the several Diseases. This plan is also followed by Dr Cullen of Edinburgh whose Materia Medica is in the hands of most of you. Cullen has all the Advantage of any of the others & is not liable to their Exceptions. In this Copy published here Dr Cullen was not at all concerned & it appears to have been printed from the imperfect Notes of some Students who attended his Lectures. It is not so perfect as we could wish it to be or as we could expect it to be had it come ~~from~~ the Doctor himself who is so ingenious a Man & successful practitioner. Imperfect as it is, it is but doing justice to

58<sup>o</sup> the book to say that it almost exceeds every thing that has hitherto been published on the Materia Medica.

The plan which is pursued in this Work is exactly the same with the one I shall follow in this Course of Lectures & for this Reason it will be particularly useful to you. Great part of the Time will be spent in making general Observations & Reflections if we had not such a Book whereas now I shall have more time to make Applications of the Mat. Med: to the Practice. I am informed that a new Edition will soon be published under the inspection of Dr. Cullen himself which we may reasonably suppose will exceed any Thing that has ever been published on this Branch. By possessing Dr. Cullen's Mat. Med: & Practice of Physic you will be enabled to attend these Lectures with greater Advantage. In his practice you will find the History of Diseases deli- vered in a very accurate Manner & by atten- ding to this & the Course of Practice he deli- vered

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vers, you will <sup>reap</sup> more Advantage from these Lectures  
than you would otherwise do.

In Imitation of Doctor Cullen I shall  
distribute Medicines under Three Heads accor-  
ding as they are directed to act.

- 1 Upon Simple Fibres
- 2 The moving Fibres or Solida Viva
- 3 The Fluids

These general Divisions are again subdivi-  
vided into Classes comprehending Medicines  
of simular Virtues. It is to be observed that  
these general Divisions are entirely arbitrary  
& calculated mostly to assist the Memory,  
it is however no Matter whether they are  
entirely proper or not provided the Classifica-  
tions are exact. An Instance of their not  
being exact we have in ranking Astringents  
with those Medicines which act on the Simple  
Fibres whereas their principal Action is on  
the Moving Fibres.

The first Class to be considered are the  
Nutrientia

By this Term we mean every Thing employ'd by Mankind in their daily Food & this comprehend under it not only those Substances which are calculated for the Nourishment of the Body but also those Substances which are taken in along with our Food to render it Palatable.

All our Aliment is of two kinds - Vegetable and Animal. As all Animals even those that live on other Animals originally live on Vegetables it seems proper to consider Vegetable Aliment first.

Vegetables are subdivided into those which serve for Medicines and those which are more properly adapted for Nourishment. The mild, bland, insipid, inodorous Vegetables are most proper for Nourishment, while the acrid, bitter nauseous & those of a strong smell best answer the purposes of Medicine. It is however, ever probable that there is no plant but what affords Aliment to some Animal or other, for it is not to be supposed that anything is made in vain. Thus some of the rankest poisons to Man are innocent to other Animals.

and some innocent to Men will kill other Animals  
a few Instances will tend to illustrate this. Hem-  
lock which is very poisonous to Men & which  
was employed by the Antients to deprive their  
State Prisoners of Life affords a wholesome and  
agreeable Food to the Horse, whilst Ground Ivy  
which is at least innocent to Men will kill  
the Horse if he eats any quantity of it. Many  
Vegetables of an Acrid Nature may by roasting  
or boiling be rendered mild. The Indian Turnip  
which in its recent State is very acrid by roasting  
it rendered perfectly mild & then affords a whole-  
some & agreeable Food. The Cassada which in its  
recent State is very poisonous by proper prepa-  
ration affords Bread to most of the Inhabitants  
of the West Indies. In general however we may  
observe that none but mild & bland Substances  
are fit for Food or Nourishment. Mustard, Cresses  
& all other acrid Substances & Spices we employ  
in Diet of which the Principal are the Aromatis  
as Pepper &c. are not used as Nourishments but  
merely to correct any bad Tendency in our Aliment  
or to render it more Palatable These are called

## Condiments.

Before we proceed any further it may not be improper to inquire into the Causes of Hunger. Were we to consult all our Feelings, we would not find it difficult to ~~Define~~ the Cause of Hunger. But Physicians are not contented with Simplicity & what is evident to every Person. Refinement is necessary to show their Ingenuity & however paradox it may appear it is certain that few Physiologists have been of the same Opinion with Regard to the Cause of this Sensation - The celebrated Hoffman attributes it to an Acid remaining in the Stomach from the former Meal & this Opinion he thought confirmed from the well known Fact that Acids taken into the Stomach will create or increase this Appetite. The Stomach is often entirely emptied by Vomits & purges & Hunger still remains & is often increased. This single Consideration sufficiently refutes Hoffman's Theory. Baerhaave Haller & others suppose Hunger to arise from rubbing or Friction of the folds of the Stomach against each other. They reason thus - When the Stomach is empty

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it being a Muscular Organ will contract & the opposite sides being brought together the Folds will rub against each other & produce Hunger. But the Structure of the Stomach will sufficiently refute this Theory for as it is round & Conical it is impossible to contract so much as to bring its opposite Sides ~~into~~ <sup>into</sup> Contact & even if it could be the Coats are so defended with Mucus that no uneasiness could be produced unless the Stomach was deceased or the Mucus abraded. This Theory therefore will apply no more than the former. Hunger is to be accounted for solely from the Emptiness of the Stomach. I am fully convinced that no Person in Health ever craves Food while his Stomach is full nor until it is relieved from the Load of the former Meal. Altho' we find Persons who feel no Hunger when the Stomach is empty & others who are continually craving tho' it is full, yet these Persons are never to be considered as enjoying a good state of Health — And Instances taken from a deceased State ought not to be employed in accounting for any Thing in a sound State. The continual craving for Food seems to be owing to some Affection of the Nerves of the Stomach. When we come

come to treat of Indigestion we shall consider the Causes to which a Loss of Appetite is owing.

: It has been often debated whether Man was intended to live upon Animal or Vegetable Diet, we shall pay some Attention to this Particular

Not only particular Men but also whole Nations in all Ages have subsisted on Vegetable Diet. The Persians a great Part of the Inhabitants of the Southern parts of Asia live almost solely on Dates. In the great City of grand Sarick Constantinople the poorer sort of People live almost entirely upon Cucumbers. The Arabs live on Fruit Water & Goats Milk. The Capada alone formerly afforded Subsistence to the wild Inhabitants of the West India Islands. In the Highlands of Scotland we find the People in General live & grow robust on Oats & Onions. On the contrary there are some Nations & those not few in Number who live entirely on Animal Diet. Thus great part of the Inhabitants of Africa live upon Fish. The Inhabitants of Northern Countries as Lapland, Greenland, Iceland &c where the Ground is covered almost the whole of year with Frost & know so that the Earth cannot furnish

Vegetables for their Subsistence, are constrained to live almost entirely upon Fish & such other Animals as they can procure. The best Accounts assure us that the wandering Scithians & their Descendants the Tartars live solely on Animal Food. The Patagonians are said to have a great Aversion to Bread & are very fond of Animal Food particularly of Horse Flesh. A Nation has been lately discovered in the Eastern Archipelago whose Country is so barren as not to procure any Vegetable not even Grass so that No Animal can live there but Man. These People subsist entirely on Shell Fish which the Sea throws up at every Flood Tide. They spend the whole Period of a wretched Existence, in searching for Food & are but one Degree removed from the lowest of the Animal Creation. Man appears upon the whole to be intended by Nature to live upon both Vegetable and Animal Food; he has both the Dentes laniarii & molares; The Intestines are longer than those of the Carnivorous and shorter than those of the Herbivious Animals. We find from Experience that Persons who subsist on Vegetables are weak & relaxed & constantly subject to Disorders of the Bowells. An Animal Diet produces more dangerous Disorders - Eruption on the Skin

Scurvy

Scurvy, Leprosy, Dysentery & other Putrid and Malignant Disorders are often the Consequence of too free a Use of Animal Food. It conduces to the Health of Men to partake of both. In general now a Days the Use of Vegetables is more indulged by the Inhabitants of the warmer Climates while the Inhabitants of the North live principally on Animal Diet This is consistent with both Reason & Experience?

Of Condiments those that are most generally employed are Salt, Vinegar & Sugar. Salt is employed with Animal Food to render it more savory - it also resists putrefaction. Sugar the most wholesome Condiment we can employ - it is very nutritious & we may justly assert that all Vegetables are more or less nourishing in proportion to the Sugar they contain. It is a powerful Antiseptic, hence is useful in Putrid Diseases. Doctor Pringle thinks that the less frequent Appearance of the Plague & other Malignant Disorders in Europe of late than formerly is owing to the more general Use of Sugar. It may be extracted from all the esculent Plants.

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Whatever Aliments we make use of Chyle is formed from it which is taken up from the Intestines by the Absorbents created for the purpose & by them conveyed into the Thoracic Duct which opens into the Left Subclavian Vein where the Chyle is mixed with the whole Mass of blood from which afterwards all the different Secretions are made, as Urine, Bile, Semen &c None of these fluids are originally or at least formally present in the blood no more than Rum is contained in Sugar or Spirits in Wheat & Rye.

We shall now consider Digestion, that process by which our Aliment is converted into Chyle We shall first consider the liquors subservient to this process which are the Saliva, Gastric liquor, Bile & Pancreatic Juice. The Saliva by Experiment appears to be composed of Water & a small quantity of a certain viscid Matter with the Nature of which we are but little acquainted. Heat resolves it into the same Materials with other Animal Liquors. The first person from whom we received any proper Notion of the use of the Saliva was Dr Pringle. Afterwards Dr M'Brude From the Experiments of Sir

69. Single it appears that upon adding it to a  
Mixture of Beef Brandy & Water it promo-  
ted Fermentation but at the same time modera-  
ted that Fermentation so as to prevent it from  
running into the Aetious or putrefactive &  
probably may have the same use in the Body.  
It is very apt to form Concretions or Calculi  
like those of the Urine. The Concretions or Cal-  
culi are often found in the Salivary Ducts par-  
ticularly those under the Tongue. The concre-  
tions that are formed about the Roots of the  
Teeth are owing to the Saliva. With the Gastric  
Liquor we are still less acquainted than with  
the Saliva as it is difficult to procure it in  
a pure State. Nothing tends to shew the Na-  
ture & Use of it more than the Experiments  
of Mr Reaumur on different Birds. He insti-  
tuted those Experiments with a view to deter-  
mine the Disputes of the Academicians con-  
cerning the manner in which Digestion is  
performed. His Experiments are not only  
ingenious, but very accurate.

The Chemical Physicians ascribed Digestion to  
a Solvent which they said acted like Aqua

Postis. They even determined in pretence that it was  
a very strong acid. The mechanical Physicians  
as Borelli, Bellini, Pitcairne ascribed it solely  
to Triture & mechanical Force. They considered  
the Stomach as a muscular Organ after  
finding the force which smaller Muscles could  
exert they endeavoured to compute the force  
of the Stomach. M<sup>r</sup> Beaumur shewed that nei-  
ther were entirely right tho' perhaps neither were  
entirely wrong. He began with a Turkey a fowl  
whose Stomach is remarkably strong & muscular  
& which always swallow small Stones to assist  
its Digestion. He made it swallow glass tubes  
which he found broken in its stomach after  
some time. He then tried thin metallic ones  
which tho' not broken were compressed & undivided  
perfectly flat. He proceeded until he got tubes  
strong enough to resist the force of the stomach.  
In these tubes he inclosed grains of barley &  
stopped up the ends in such a manner that  
nothing could escape unless in a fluid form.  
After those tubes had remained in the Stomach  
two or three days he found that no change  
had taken place except that the grains were

swelled but not more so than they would have been had they been soaked in any other liquor, with the same degree of heat. In this fowl then Digestion seems to be carried on wholly by mechanical force & the Gastric juice does not act as a Solvent. Its conversion into Oyle certainly depends upon the mixture of certain Fluids but the first Digestion in the Stomach of this Bird depends on mechanical Triture.

He next tried Experiments upon a Hawk whose Stomach is very thin & membranous. This fowl is particularly fitted for such experiments as it throws up whatever it has not digested. He found the thinnest tubes could resist the force of the Stomach. He inclosed in perforated Tubes Flesh & found it converted into a mere mucus without any bad smell. He tried the Hard bones of an Ox & found them dissolved also. He then inclosed grains of barley which were thrown up without being in the least changed. And then we have a Solvent of a very curious Nature which will dissolve flesh & even bones &

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get has no effect on Vegetables or even the stomach  
of the Animal. From this we are not to infer that  
the Gastic Fluid of Man acts as that of either  
the Turkey or Hawke.

There is no Doubt but that the full digestion or  
conversion of our Aliment into Chyle depends  
on the Mixture of certain fluids. But the first  
Digestion in the Stomach seems to depend wholly  
upon Fermentation Of this there are three  
Species - the Vinous, Acetous, & putrefactive  
Of their principles we are entirely ignorant - we  
cannot explain them & can only make you  
acquainted with them by Analogy. Of the  
Vinous fermentation we have an instance in  
Wine, Beer, Cider &c When these Liquors turn  
sour we term it the Acetous fermentation  
The putrefactive fermentation more commonly  
seems in Animal Bodies. The Vegetables are  
also capable of it. All Substances pass thro'  
<sup>three</sup> different Species of fermentation before  
they become putrid - The Vinous & acetous take  
place in the Stomach the last in the Intes-  
tines. All the Aliment in the Stomach is

aceous even flesh, for an Acid can be obtained from the Stomachs of all Animals even those that are carnivorous & the Stomachs of all Animals will coagulate Milk. Persons who have for several Days lived on Animal Food when they vomit throw up Acid.

The acescent Aliment is mixed in the Duodenum with the Bile and is thererendered of an Animal Nature. Bile is another Fluid which is of service in the Digestion of our Aliment. It is only since the Experiments of Dr. Ramsay P. N. at Edinburgh have been published that we have any tolerable Notions concerning the Nature of the Bile. Dr. McLurg has since prosecuted this Subject. Those Experiments were made on the Bile of different Animals, but more particularly on that of the Ox, from the Nature of which last all the Opinions concerning the Nature of the Humane Bile have been formed. The Bile has been supposed to be of an Alkalcescent or putrescent Nature and that by this property it neutralized the acescent Aliment. It has also been supposed to be of a saponaceous Nature & that by this quality

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it was of use to promote Mixture of the oily and  
watery Parts of our Aliment. Dr. Ramsays Experi-  
ments sufficiently refute both <sup>these</sup> Opinions - When he  
attempted to mix Oil & Water by it he constantly  
found his Endeavours fruitless. He found ~~that~~ <sup>he</sup> could not succeed so well with it as with Sugar,  
which is far inferior in this Respect to Mucilage.  
That it is not alkalescent or putrescent is evident  
from its standing many <sup>Days</sup> without becoming Putrid.  
It will indeed emit a Musty smell but will not  
smell putrid nor generate Insects. All the Fossil  
Acids e. g. Vitriolic has the Power of precipitating  
the green part of the Bile in which the Bitterness  
is lodged - Four parts of Vinegar added to five of  
Bile produced a sweet Liqueur which would not  
coagulate Milk, altho' the least particle of  
Vinegar will do it seperately. Bile mixes with  
Water & Spirits of Wine without separation of  
parts. From these it appears plainly that the  
Bile cannot by any alkalescent tendency neu-  
tralize the acid Aliment. All Animals  
are provided with Bile both carnivorous

and herbivorous. In the latter was it putrescent it might not be productive of much inconvenience but in the former it would be highly injurious. We can assign a much better Use for it. All Bitters prevent Fermentation. The Bile is one of the strongest Bitters in Nature and from this Quality tends to prevent an immoderate Fermentation either of the acetous or putrefactive kind from taking place in the Intestines. Thus we add Hops to Beer to prevent its turning sour. We administer the Bark in cases of prevailing Acid in the Stomach - We also administer this Remedy in Dysentery & other Putrid disorders. Meat wrapt in Wormwood is preserved from putrefaction -

In the Stomach there is always an acetous Fermentation which urges to the putrefactive in the Intestines. We are little acquainted with the Pancreatic Juice. It appears to be of the same Nature with the Saliva. It probably acts principally as a Diluent to the Bile - It may also - -

afist in preventing an immediate Fermentation  
We have now considered the Liquors subservient to Digestion & have endeavoured to establish Fermentation as a Cause on which this process depends. We shall now take Notice of a Theory which endeavours to account for this Process entirely from Solution and considers the Gastro Liquors as a Solvent.

The Basis of this Theory are some Experiments published by Doctor Stephens upon taking a Doctors Degree at Edinburgh. The Person on whom these Experiments were made was an Hungarian Soldier who possessed the singular Property of digesting Stony Matter. This Wretch supported a miserable Existence by swallowing Stones for a trifling pecuniary Gratification. His Excrements appeared like Mortar. He would swallow Stones untill his Stomach was greatly extended & upon being struck externally the Friction of the Stones would readily be heard. Various Kind of Meat roasted, boiled & raw were enclosed in

68 Tubes of Silver & Ivory perforated with Holes or Apertures to admit the Jusices of the Stomach. These were swallowed by this Devourer of Stones & discharged at different Times by his own Purges, in the natural Way by Stool in Order to observe the changes which were produced. These Substances were always more or less dissolved according to the Time they remained with him & no other Change was produced. They were neither Acid nor Putrid and of Consequence could not have undergone any Fermentation. Whether these are sufficient to establish this Theory remains to be determined. With Regard to the Experiments there is no Reason to doubt the Truth or Accuracy of them; but whether Phænomena observed in a Body so essentially different from all the rest of the Human Species should be considered as generally applicable requires the most serious Consideration. It is certain some Degree of Acidity is present in every Stomach & some Degree of Fermentation is necessary to produce this Acidity. You will also observe from these

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Experiments, that the Flesh of young Animals  
& that which is well done was of easier Digestion  
than the Flesh of older Animals & that which  
was rare done which is likewise contrary  
to the general Opinion. Vegetables also of all  
Kinds were much longer Digesting than  
Animal Substances. Digestion then in the  
Human Stomach appears to depend on  
Fermentation as well as Solution. —

Lect 4<sup>th</sup>

All Vegetables are nutritious in proportion to the Sugar & Oil they contain & according as they are blended together & from the farinaceous Substance proper for Nourishment it will afford. The more sugar or Oil any Vegetable contains the more Nourishment it will afford provided our Organs are capable of a familiarity assimilating. Thus Rye being a sweeter Grain than Wheat affords more to the heavy Laborer & others who can assimilate it. It is however from this Sweetness more fermentable & is thus apt to prove purgative for which Reason it is recommended to those who are troubled with habitual Costiveness provided they are not subject to Hysteric Hypochondriac Diseases. The Costiveness which occurs in these Habits is not owing to Rigidity but to Laxity & Loss of In Robust & plethoric Habits Vegetable Aliment affords the most Relief I have often known Persons cured of this Complaint by eating Rye Muff & Milk. When Costiveness is owing to Laxity as in Hysteric, an Animal Diet is certainly the most proper when it is owing to Rigidity & increased peristaltic Motion a Vegetable Diet proves useful.

A Vegetable Diet is never hurtful to Persons troubled  
with Indigestion & Flatulencies &c. The Stomach  
always abounds with an Acid - the Fermentation  
increases this - besides fixed Air or was formerly  
called Gas Sylvester is generated which has the  
Power of destroying the Contractility & Mobility  
of the Stomach & Intestines. Hence arise Syncopes  
& Death. Women of a tender & delicate Constitution  
are frequently seized with Faintings & Convulsions  
from this Cause, more especially after eating Apples  
& Milk. There are certain Vegetables as Cabbages  
Peas &c which are particularly disposed to produ-  
ce grievous Effects in such Persons - their bad  
Effects do not arise from their Acidity as they are  
possessed of that in a small Degree but these Sub-  
stances being of a tough firm Texture they re-  
main a long time in the Stomach & whilst they  
are undergoing vinous Fermentation will evolve  
a large Quantity of fixed Air or Gas Sylvestre  
which will distend the Stomach & Intestines &  
produce violent Distension & pain in particular  
Parts. That this is really the Case appears from  
our using Split Peas which being deprived of

72 Their outward Husk are rendered much more  
luble & may be used without bad consequences.  
Children are particularly liable to be afflicted  
with Flatulencies & Indigestions from Vegetables,  
particularly from Nuts unripe crude Fruit, pas-  
try &c. which often produce Convulsions. The  
best Thing to give them Relief in these Cases is  
to administer Emetics instantly. Whenever I  
am called to a Child in Convulsions I always  
inquire whether it has eat any Thing which  
might lie on its Stomach & produce these Ef-  
fects. I have known not only Children affec-  
ted in this Manner but also strong Men from  
Apples & Milk. These were to all appearance in  
a Fit of Apoplexy - they are almost always re-  
lieved by an Emetic. The small frequent pulse  
in this Case sufficiently characterizes it from  
Apoplexy in which a very different Method  
of Treatment is necessary. The Diet proper  
for Persons troubled with Hypochondriae or  
Hysteric Disease with Flatulencies & Indiges-  
tions is most undoubtly Animal Food.  
We should always attend to the State of a  
Person's Stomach before we attempt to prescribe

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any Diet for them. The most certain Sign of a weak Stomach is when the Crustation or what is belched up will flame in the fire, like Oil. The following Cure of which I am now treating will tend to shew the Necessity of prescribing a proper Diet.

A Person who had been long subject to Flatulencies, Indigestion & other Disorders of the Stomach & Bowels, After taking Bitters, Chalybeates & Mineral Waters to no Purpose, After leaving off all Medicines & being confined to ~~Flesh~~ Broths & light Meals easy of Digestion eating no Vegetables but Bread, is now relieved of those Complaints, digests the Food well and I am certain by continuing this Method <sup>will</sup> be restored to a proper State of Health. Nothing is more pernicious than Butter & greasy substances of any kind in weakness of the Stomach On this Account Pork, Goose, Duck & every other fat Substance must be absolutely forbidden in these Cases. Altho' an Animal Diet in these Cases is to be preferred yet it should always be accompanied as much as possible with Vegetable

¶ Vegetable food for there are instances of Scurvy being produced in a high degree from living too much upon animal food. Here Bread Your common Potatoe are the most proper Substances to be taken with it. A Gentleman of my acquaintance has so weak a Stomach that he cannot eat any Vegetable not even Bread without feeling disagreeable Consequences, but he can eat as much potatoe as he pleases without being at all affected. I mention this to shew you that potatoe deservedly makes the greatest part of the Vegetables we use. I cannot agree with what Dr Cadogan says of the bad Effects of Bread in those Disorders. He macerated Bread in Water in 96° of heat & found it became Acid from which he inferred that the same thing happens in the Body. Against this also the Case with all kinds of Flesh broth which will turn sour before they become putrid. And from the latest & best Observations it appears probable that all kinds of flesh become acid before they putrefy. We must allow that the bread which Dr Cadogan used has this Effect, as there is no

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Reason to doubt his Accuracy & candour. It has  
been too much the case to infer from what hap-  
pens without the body that the same must take  
place within it. These Experiments in general  
either prove too much or nothing at all.

Bread or other Aliment being taken into the  
mouth is there chewed or masticated. This blen-  
ded with the Saliva. In the Stomach it  
meets with the Gastric Liquor & in the Intes-  
tines with the Bile & Pancreatic Juice.

All these fluids will prevent or check the vi-  
inous or acinous fermentation. Digestion is much  
better performed when the Aliment is well blen-  
ded with the Saliva. You can scarcely conceive  
what a Difference this Circumstance will  
make; for this Reason persons who have weak  
Stomachs should employ Biscuit or hard bread.  
I have known persons so much troubled with  
Aridity that common Baker's bread would not  
stay on their Stomachs yet they felt no In-  
convenience from the use of Biscuit. Children  
who are fed upon Pap made of flour & water

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or Milk are often troubled with Acidity & Dia-  
rrhoeas but upon using biscuit instead of flour  
they are relieved of these Complaints. Bread  
toasted very hard will often stay on the  
Stomach when no other Aliment can be re-  
tained. In Cases of this Nature it is not suf-  
ficient to attend to Diet it is also necessary  
to regulate the Drink of our patient. In all  
Cases where a Relaxation of the Stomach takes  
place all fermenting & even fermented Liquors  
should be entirely banished. I have known even  
Madeira Wine turn sour upon the Stomach.  
The best Drink is Toast & Water - a little Wine  
or Spirits may be occasionally added. When  
these Substances are taken moderately they  
tend to stimulate & strengthen that Stomach  
& assist Digestion - this was the only drink  
& Remedy employed by Dr Fothergill in  
Cases of Indigestion. Various Remedies  
have been recommended to recover the Tone  
of the Stomach & to assist Digestion. Dr Culpeper  
advises a Solution of common Salt with

24 times its weight of Spring water acidulated  
with a little Spirit of Sea Salt. This he advises  
to be used as a common Drink & speaks highly  
in favor of it. I cannot say how justly he re-  
commends this as I never have had an Oppor-  
tunity of trying it. I have always found the  
common Elixir Vitriol to answer every pur-  
pose as a Medicine. I advise 20 or 30 Gutt. to  
be taken bis vel ter die in Ag. biff. All the  
Mineral Acids create an Appetite & prevent Fer-  
mentation of every kind. Perhaps either of them  
will answer equally well. I must not however  
omit mentioning some Observations made by  
Doctor Smith a Gentleman of my Acquain-  
tance who is now an eminent practitioner at  
Manchester in England. He found that a Solu-  
tion of common Salt was the most considerable  
Stimulus to the animal fibre. He made his  
Experiments upon frogs & found that it would  
make their muscles contract when they were  
insensible to every other Stimulus from whence

it seems probable that the Muriatic Acid joined with the Solution of Sal Commune as recommended by Dr Cullen would be equally effectual & in some Cases perhaps preferable to the other Acids. There are few disorders more common than those which arise from a Relaxation of the Stomach producing Indigestions & I will recommend to You to read Dr Cullen upon this head in his Chapter on Dyspepsia.—

We have considered the Diseases in which a Vegetable Diet is improper. We are now to mention the cases in which it is serviceable.

Wherever there is a Disposition to Putrescency as in the Scurvy, Dysentery, Putrid fevers & in all Cases of inflammatory Diathesis a Vegetable Diet is indicated. All persons that are troubled with a Spitting of blood, Inflammatory Fever, Pleurisy &c should confine themselves to a vegetable Diet. It is remarkable that more people die of Consumption in England than in almost any other place. This cannot be owing to the Climate as the Scotch

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Irish who inhabit nearly the same Climate are  
not near so subject to this Disease. It seems  
to be owing principally to the Inhabitants ha-  
ving so much animal Food. A Vegetable  
Diet is the best & perhaps the only Remedy in all  
consumptive Habits. I have relieved several  
Persons who had all the Symptoms of an ap-  
proaching Consumption by confining them en-  
tirely to Vegetable food allowing no animal  
Substance except Milk. This in most cases  
is allowable. A Vegetable Diet is to be recom-  
mended to all persons labouring under Rheu-  
matic Complaints. Putrid Disorders with  
Pustules were very common in Sydenham's  
Time as appears by his Works. Those Disorders  
are now scarcely known in London. It appears  
that a much greater proportion of Vegetables  
is consumed in that City than Sydenham's  
Time. The Dysentery has been supposed to  
arise from a vegetable Diet particularly  
from the use of ripe fruit. This Notion is en-

truly false & groundless & has been very distrac-  
tive as it prevented the use of those fruits  
which are most proper for the Cure of this  
Disorder. Dr Tissot in his advice to the  
People / a book in which you will find more  
Candor, Humanity & good Sense than in  
almost any other of equal Size that was ever  
published / has given us several instances of  
ripe fruits effecting Cures in this disorder.  
Amongst others he has one of eleven persons  
in the same family being seized with a  
Dysentery nine of whom recovered by the  
free use of fruits, two, the old Grand-Mo-  
ther & a favorite Child fell a Sacrifice  
to the unreasonable prejudice of not eat-  
ing fruit. He also tells us of a Swiss Ar-  
giment in Garrison in the South of France  
who were almost entirely destroyed by the  
Dysentery. The Officers ~~had~~ pinched  
the whole Crop of several acres of Vine-  
yard there they carried the sick Soldiers

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I gathered the Grapes for such as could not bear to  
~~be~~ carried to the Vine Yard, those who were well  
eating nothing else. After this not one died nor were  
any more attacked with the Disease. Not ripe  
Grapes alone are of Service in this Disorder all  
ripe Fruits will answer equally well. We have  
a Fruit in this Country which seems particularly  
adapted to this Disease. I mean the Water Melon.  
Doctor Hasselquist in his Travels to the East tells  
us that Egypt after the overflowing of the Nile  
and the Waters again subside, from the putre-  
fying of the Filth which that River brings w.  
it, Dysentries, Putrid Fevers & other malignant  
Disorders are very common. The Inhabitants  
make Use of the Water Melon in these Diseases  
I drink the Juice of it. This in general performs  
the Cure & very few die of Disorders which, in  
other Parts where a different Method of Treatment  
is pursued, prove so fatal. The Water Melon acts  
by increasing the Excretion by Stool & Urine  
& by supplying a cooling Antiseptic Fluid to the  
System & thus does more Service than the Cordials  
of the Shops which are usually given in such Cases.

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Doctor Hillary exploded the Use of Gaudia &  
Stimulants in the Yellow Fever & trusts prin-  
cipally to diluent acidulated Drinks & a pro-  
per Vegetable Diet. A Gentleman who had been  
Physician to a Naval Hospital at Halifax  
informed me that upon the Return of a Vessel  
from a long Cruise the whole Crew were down  
with the Dysentery. A great Number of them  
died altho' the Bark & other Remedies usual  
in this Disorder were employed until one  
of the inferior Officers to all Appearance  
just dying begged to be indulged with a  
Draft of Punch. His Request was granted  
& he took off a whole Bowl at a Draught.  
This threw him into a Gentle & Sweat & by  
repeating his Draught he in a short Time  
recovered. From this the Hint was taken  
& by the proper Use of Acidulated Drinks  
the whole Crew recovered. The Dysentery is  
a Disorder which often appears in long  
Encampments. The German Soldiers when  
seized with it trust to their Mixture of Vine-  
gar & Cream which they will swallow in

as large Quantities as they can procure & are seldom £10.  
appointed in their Expectations of a Cure.

The Dysentery if not occasioned by, is always ac-  
companied with, a depraved State of the Bile. What-  
ever will evacuate the degenerated Fluids & at the  
same time supply a mild antiputrescent Nourishment  
to the System must certainly be of Service in this Case.  
A few Doses of the Bark are not adequate to the Dis-  
order & besides the Stomach cannot bear it but rejects  
it by Vomiting. Ripe Fruits do not only agree with  
the Stomach in this Disorder but are also eagerly  
desired by the Patient. A Chronic Dysentery is  
frequently cured by the Use of Ripe Fruits after  
it has a long time baffled all the Efforts of Medicine.  
The best Remedies therefore for the depraved State  
which takes place in Dysenteries are recent asces-  
cent Vegetables, particularly ripe Fruits They pro-  
duce an alteration in the State of the Bile and  
at the same time by stimulating the Intestines  
cause an Evacuation of the Morbid Matter. The  
Dysentery is never occasioned by Fruits. They will  
frequently produce Colic, Diarrhaeal & Cholera Morbus

A Colic is often occasioned by Fruits. The fermenting in the Stomach evolves a large quantity of Fixed Air which distends the ~~Intestines~~ which produces grievous pains and spasmodic Contractions & speedy Relief is not given will occasion Faintings, Convulsions & Death as happened to a Person who was taken in the Middle of the Night after eating a large Quantity of Cherries, with a violent Pain of the Bowels & an Inclination to vomit. The Abdomen was distended to an enormous Size & tho' every possible Means was tried to give Relief the Person expired next Evening. The Medicine which I have found to afford the most speedy Relief in these Cases is the volatile Salt of Hartshorne or Amoniac, One Drachm of this dissolved in Four Ounces of Water with a few drops of any Carminative Oil & if the Pain is very violent Lig: Laud: <sup>9<sup>th</sup>/10</sup> and a Table Spoon full taken every Hour or two according to Circumstances will generally afford Relief - Or it may be formed into Bolusses with Conserve of Roses. Five or Six Grains may be given in each Bolus

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with a Quarter Half or even whole Grain of powdered Opium. Notwithstanding all our Efforts the pain will some time continue & the Patient expire. I was called upon to visit a Person who about Six Hours before I saw him had been seized with a pain in his Stomach from drinking a Cup of Butter Milk which had stood over Night & had become Sour. I had recourse to Opiates, the Volatile Salts, Fomentation to the Abdomen and had the Patient put two or three Times into the Warm Bath & notwithstanding all these Applications a Vomiting still remained which would suffer nothing to stay in the Stomach & the Patient died within Twelve hours from the Time I saw him. From the small frequent Pulse in this Case & the Coldness of the Extremities, I am most ~~certain~~ certain that a Mortification of the Stomach took Place which killed the Patient.

The vulgar Practice of eating Cheese with Fruit is a very good one, as Cheese especially when old is of an Animal Nature, & will tend to obviate the bad Effects of the Fruit.

A Diarrhea is often owing to a too free Use of Fruit. It arises from the acqueous Liquor of the Fruit, mixing with the Bile & stimulating the Intestines. If attended with no other Complaint it scarce deserves the Name of a Disease but ought rather to be considered as a Healthy Evacuation. If it is troublesome a Dose of Rhubarb will

generally remove it.

If Cholera Morbus is often brought on by the Use of Fruits. The Acid Liquor they produce stimulating the Stomach & Intestines occasions Evacuation both by Vomiting & Stool. Warm Water Warm Teas or Chicken Broth drank plentifully will generally give Relief by diluting & evacuating the offending Cause. If Vomiting should continue merely from Irritability of the Stomach a large Dose of Laudanum should be given & repeated until the Vomiting ceases. If the Patient is plethoric we should advise Bleeding least a Rupture of some Blood Vessel in the Head Lungs or Stomach should be occasioned by the violent Straining in Vomiting. You are to observe as long as the Vomiting is without Spasms there is no Danger & we need not be solicitous about it. But as soon as ever Spasms occur either in the Stomach or other Parts we must have immediate Recourse to Laudanum which is to be given in such Doses & repeated at such Intervals as will Effectually put a stop to the Complaint.

## Lecture 5th.

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Vegetable Aliment is the best Preservation against the Scurvy & when this Disease <sup>has</sup> actually taken place it is the only Thing to be relied on for a Cure.

Many Disorders seemingly of a quite different Nature have gone under the Name of Scurvy. Thus any Eruption on the Skin for which the Physician is at a loss for a Name is said to be owing to a Scorbatic Habit of Body. This often satisfies both the Patient & Physician & Medicines are given for a Disease which exists only in their Imagination. By the Scurvy I mean what is properly called the Sea Scurvy. This Disorder generally begins with a Lassitude and Heaviness which is considerably increased in the Morning & Evening especially in the Morning unless the Person has perspired freely in the Night. Weakness in the Back & Knees & aversion from Motion & Weariness upon moving ever so little. The Respiration is Laborious with a Palpitation of the Heart. The Countenance loses its healthy Colour & becomes bloated & yellow & after some time acquires a greenish Hue. The Corners of the Eye appear whitish & even yellow. Sadness & Sorrow take place over the whole Countenance. The Gums itch burn & smart. The Teeth are

are frequently elevated in their Sockets - Blood flows from the Gums upon their being touched never so little - There also partial Tumors formed in the Gums which are to be cured by opening them. The Gums opposite to the Jaw & Teeth are most liable to be affected & the outer & inner Gums are affected at the same time. The Teeth loose their Ivory Whiteness - they become yellow & as the Disorder advances they become black are loose & may be readily taken out. If there is a decayed Tooth in the Head there is a Pain in the Jaw at that place increasing in the Night but not otherwise. The Breath is very offensive. The Saliva is thin & acrid - There are great Pains in the Joints especially in the Knees & Ankles - There is often an acute Pain running from the Ankle along the Tibia to the Knee, some times it extends along the Thigh to the Groin. - A crackling Noise is heard in the Knee upon moving. Pains are greater in the Evening but upon the Persons getting into Bed & perspiring freely they are considerably relieved - and indeed in sweating the life of Scorbutic Patients may be said to consist. In the beginning there are sometimes pains in the Thorax which are not fixed but seem to fly from one part to another but chiefly

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across the Breast. They are attended with a difficulty  
of breathing with a Sense of weight in the breast. As  
the Disorder advances this weight & Oppression are  
increased & show that the Vital powers are decli-  
ning & that Death will soon close the Scene. There  
is no pain felt from pressing the Thorax external-  
ly. The Muscles over the body are very much  
relaxed & very meagre & they seem as if they were  
separated from the bones. The Skin appears  
from the beginning like what is commonly  
called Goose flesh hot & dry. In hairy persons  
at the Root of the hairs on the legs & thighs ap-  
pear Pustules which are red yellow purple &  
subdivid. In smooth skinned persons there appear  
Spots like flea Bites all over the Skin which  
are not elevated above it which appear red  
livid & purple Tears from wounds & ulcers  
change their Colour. They first appear darker  
than the rest of the Skin & as the Disease ad-  
vances they become livid. There appear also over  
the Skin ~~Spot~~ like Ecchymoses from a blow  
which appear yellow purple & black & some-  
times these Colours are all mixed together

like those of the Rainbow.

All these Appearances are trifling in comparison with the Tumors that are formed on the Limbs. These are at times preceded by great pain; at other times none at all. These are produced in the following manner. On the Surface of the Skin appears a small Spot which is first perceiveable by being of a different Colour from the rest of the Skin tending to a darkish brown yellow and a little elevated; this increases from Day to Day running along the Limb. It is at first moveable but as the Disorder increases it becomes immovable. It has various Colours purple, livid, lead, black & all together. As the disorder advances it penetrates into the Muscles & appears to adhere to the Bones. It communicates an uneasy Sensation of heat to the Touch. This Sensation is very different from that which occasions inflammatory Tumors. Putrid Tumors always communicate a purulent heat to the finger. The Tendons & muscles are affected - They are contracted very much & the patient is unable to extend

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his Leg so that he is obliged to walk with a bent  
knee on Siptae. It is remarkable that both legs  
are never affected in this Manner at the same  
Time. They seldom affect any part but the Legs.  
These Tumors never inflame nor suppurate &  
never excoriates. They remain until the Patient  
dies or until he recovers. There is also a Swell-  
ing of the feet & legs as in the Dropsy which  
it resembles in this, that the Ankle swell tow-  
ards Evening. As the Disease advances the  
whole leg is affected. It may be readily distinguished  
from the Dropsy by the Skin being discolored  
it appearing yellow & black - it is likewise more  
difficult to make an Indentation but when it  
is made it is much longer filling up. There are  
no Ulcers formed unless the Skin has been pre-  
viously broken & then a very bad Ulcer is  
produced. Tho' these Ulcers may readily be  
distinguished from common ones by their re-  
marking no pus & upon opening them a black  
concreted blood appears in the bottom. They  
sometimes form fungous flesh very quickly  
which tho' taken away by the Knife or Sciz-

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decomes returns as suddenly. Those Ulcers are  
commonly situated on the Spine of the Tibia.  
They are much worse when below the Ankle. They  
seldom affect the bone tho' they torment the pa-  
tient for a long time. We have now enumerated  
the Symptoms which without the body we are  
in the next place to take Notice of those that  
occur within it.

Fevrs seldom or never attack persons in the  
Scury. This is a very happy Circumstance,  
for as a fever to occur it must be of the pu-  
trid kind which would soon determine the  
fate of the Patient. They sleep pretty well & are  
never troubled with the headache which is so  
common in other Disorders. The Tongue re-  
tains its natural Appearance except that  
it is sometimes somewhat yellow. They have no  
Thirst, have a tolerable appetite & enjoy  
the full use of their Senses untill the hour  
of their Death. In the advanced Stage of  
this Disorder the pulse is very weak & small  
& beats from 70 to 90 Strokes in a minute  
seldom or never more. It is sometimes tho'

seldom unequal & intermitting. The Patient is generally  
costive from the Beginning & even for some time before  
the Disorder comes on but never gripes. In the advanced  
Stage of a Diarrhoeal Dysentery sometimes occur.  
A Diarrhoea often proves salutary. Hemorrhages  
are very frequent from the Nose & Anus. There is no  
difficulty in making Urine which is in very small  
Quantity & appears very high & colored & deposite  
a very yellowish brown Sediment. The Blood even  
at the Beginning appears thin & Black. The Serum  
is yellow. The Crepamentum is dissolved. The upper  
surface is red & shining below & in the Middle Black.  
They have grievous Palpitations of the Heart & appear  
very much fatigued on the least Motion tho' they  
generally feel well when lying in Bed & speak  
very loud. They cannot even bear the Admission of  
fresh Air tho' it is of such Advantage & often they  
expire suddenly when exposed to it. Of this I have  
heard a remarkable Instance of a Man who was  
lying in his Hammock & talking merrily to his Com-  
panions when the Port holes being opened to admit  
fresh Air expired as suddenly as if struck with  
Lightning. Fear & Sadness soon deprives them Joy  
& hope as soon elate them. The Breathing at last

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becomes very difficult - They are subject to frequent  
Faintings & have no Cough at last expire without  
a Sigh or Groan & can scarcely be said to know  
what it is to die.

As to the Proximate Cause of Scurvy it  
appears to be a Retention & Accumulation of  
putrescent Matters that have been gradually  
formed in the System & while the Functions  
are duly performed are carried off by Stool,  
Urine & the Inensible perspiration. The Heart  
may be considered a perpetuum Mobile. It receiv-  
es the Blood from the Veins which it expels  
into the Arteries. In this Cause there must necef-  
sarily be a great Loss of the Vital Fluid. Part  
is carried off by Urine which contains many  
acid corruptible Particles. Part by Stool, but  
the most considerable Part is evacuated by Per-  
spiration which is insensible except in the form  
of Sweat in the ~~Form~~ or in cold Weather. This  
last Evacuation is constant & uninterrupted  
while the Body is in a healthy State. Both the  
Urine & perspiration are acid, putrescent and  
of an Offensive Smell. This is evident from Persons  
who do not keep their Feet clean in Summer.

There is also a great Quantity exhaled by the Lungs  
All the Secretions even in Health are of an offensive  
Odor and Quality. This is more remarkable in the  
Sick & particularly in the Scorbutic. The Breath  
is offensive & many other Symptoms we have enu-  
merated above, tho' these may be said to be rather  
the Effect than the Cause of the Disease yet the Breath  
is offensive & the Gums affected in the very Beginning  
of the Scurvy. This Putrescency is different from  
that producing putrid Fevers &c. Putrid Fevers  
are attended with Pain in the Head intense Thirst  
frequency of Pulse & are generally Contagious  
wheras the Scurvy is entirely without these  
Symptoms & is never Contagious. I say Putrid  
Fevers are generally Contagious because I shall  
on another Occasion demonstrate that they are  
not always so. The Causes of Putrid Disorders ap-  
pear to be different. Thus some Species will produce  
a plague, some the Dysentery, some the Putrid sore  
Throat & others the Yellow Fever. From this we may  
be allowed to assert that the Putrid Matter causing  
Scurvy is very different from that of other Disorders  
All the Humours of our Bodies have a constant  
Tendency to Putrefaction. The constant Supply

of Aliment tends to correct this as Providence has given the greatest part of our Aliment the power of resisting putrefaction. The Stomach is furnished with an Acid which also tends to resist it. There are various contrivances to guard against putridity - Thus the putrescent matter in health is evacuated by Stool Urine perspiration before they can produce any bad effects, but if our food is constantly of an animal Nature the putridity of our fluids is increased more especially when the evacuations from the general emunctories of the body are diminished or obstructed. In the Scurvy the Patient is costive the urine is diminished the perspiration is checked & it appears also that the lungs are affected, hence the noxious parts of our humours are retained & accumulated. In fact we constantly carry the cause of Scurvy about us hence only Cold & Rest living on animal food or food of a putrescent nature are wanting to produce it. When these circumstances are present Scurvy immediately

takes place. In cold Climates where Vegetables are used the Scurvy is prevented, where these are wanting it is soon produced. Scurvy takes place more seldom in warm than in cold Climates, because in the former the Foramina in the Skin still kept open & the putrescent Matter is carried out. In Northern Climates the Scurvy is produced tho' they live in the same Manner as in the Southern. The Inhabitants in North are affected with only in the Winter.

Two Fleets sailing from Europe at the same time having the same Provision one stationed on the Coast of North America the other at the West Indies, the Men in the former will be affected with the Scurvy the latter perfectly free from it. In the West Indies the Sailors as it has said living upon salted Provisions or the common Provisions of the Ship perspire Salt in their Sweat in such Quantities as to exceed the Bounds of Credibility so as to be collected on the Instep when tasted it was Salt & acrid & even destroyed & wore out the Leather of the Shoes. If so considerable a quantity is collected on so small a part how great must be the Discharge over the whole Body which in these warm Climates we may say almost Dissolves in Sweat. How different must be the Case in Northern Climates where they do not sweat at all. From all this we conclude

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is no other than a Retention & Accumulation of  
Putrecent Matter in the System."

With Regard to the Occasional & Predisposing  
Causes of the Scurvy we may in general observe,  
that whatever tends to or actually produces Putre-  
cency in the System may prove the Exciting Cause  
of it. Thus the Exciting causes may be various. The  
Principal are cold Air with Moisture & such Food  
as is of a Putrescent Nature or is of Difficult Diges-  
tion or affords little Nourishment. Unless some  
or other of these take Place a Person in Health  
will have little to fear. Moisture has been accused  
of predisposing to the Scurvy but without cold  
it will never produce this Disease, tho' it may  
produce the Putrid Fever & Dysentery. That the  
Scurvy is not occasioned by Moisture without  
Cold appears evident from various Considerations.  
The Inhabitants of warm, moist Climates are  
seldom or never afflicted with the Scurvy. The  
Inhabitants of Venice who may be said to live in  
Water scarcely know the Scurvy even by Name. The  
Inhabitants of the Northern Climates, Russia —  
Sweden Lapland & Norway where in the Winter  
all the Lakes & Rivers are frozen up in such a Manner  
that no Exhalations can arise are frequently afflicted  
with

with the Scurvy. This Disorder generally attacks them in the Winter & in the Spring they are relieved from it. It appears from the Journals of the Seven Sailors who died of the Scurvy in Greenland which was found after their Death that during the eight Months they were there they had but ten Cloudy & Foggy Days. It likewise appears from very accurate Journals kept both by Sea & Land that the Scurvy seldom or never makes its appearance while the Thermometer is above  $70^{\circ}$  altho' the Sailors live on salt Provisions but it generally appears when the Thermometer falls below  $60^{\circ}$ . It is not Moisture but Cold that produces the Disease.

The Aliment which <sup>for</sup> produces most to this Disease is Animal Food especially such as is salted. There have been many Disputes among Physicians whether Salt or the Meat conduced most to this Disease. Some have accused the Salt alone while others declare the Salt to be perfectly innocent & ascribe the bad Effects solely to the Animal Nature of the Aliment - Those accuse Salt in support of their Opinion tell you of the Laplanders who live almost wholly upon Animal Food preserved by the Cold of their Climate who never Use Salt & are seldom

or never affected with this Disease. They also assert that the first Winter Quebec was taken the English Soldiers lived chiefly on Salt Meat & great Number of them died with the Scurvy, the next Winter they lived upon Meat preserved in the Air with the Cold without any Salt & continued entirely free from this Disease. Neither of these Arguments however are conclusive. The Laplanders use beside the Animal Food the Milk of Rein-Deer which they take sour & even place it before the Fire & bury it in Skins to render it acid, by this they sufficiently counteract the putrid Tendency of the Aliment. With Regard to the other Argument, waving the Consideration that the first Winter on Account of the War the Soldiers were upon very hard Duty exposed to many Hardships particularly to the Cold by which the Perspiration would be checked & a Foundation laid for the Sour, & that the next Winter all was peaceable & quiet & the Soldiers might consult their Ease & Health, waving these Considerations I say, we may observe that after the Disease had produced such Fatal Consequences, every possible Means would be employed to prevent its Return. There is not a single Instance of the Salt alone producing

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the Disease. We must also allow that fresh Meat is not so apt to produce this Disease as that which is salted. That fresh Meat is of itself capable of producing the Scurvy I lately met with two remarkable Instances, the one in a Boy of Eight years old, the other in a young Gentleman who were both highly Scorbutic - neither had eaten Salt Meat but both were remarkable for being very fond of Flesh & not eating Vegetables. Salt & Flesh combined may perhaps produce Effects which neither would do singly. This appears probable from what happens with some Substances used in Medicine particularly saline ones. Salt renders Flesh harder & of more difficult Digestion by which Means it is retained longer in the System & becomes more putrid. Salted Fish, Butter, Cheese & indeed all Animal Substances tend to excite Scurvy. Salt Butter is generally rancid & putrescent. New Cheese is one of the most insoluble Substances & most difficult of Digestion. Old Cheese is generally putrescent if not already putrid.

The best Preservation against the Scurvy are a Vegetable Diet & Exercise. Vegetable Diet prevents this Disorder by obviating the putrid Tendency of our Fluids - Exercise prevents it by keeping up

102 up the Perspiration by which the generated parts of our Fluids are evacuated & not suffered to accumulate. When a person is attacked with the Scurvy Exercise will be of no Service and indeed the Solids are so much relaxed that much Exercise can not be used. The only Thing the Patient will have to rely upon for Alure is a Vegetable Diet & Vegetable Acids, as Lemon Juice Lime Juic &c. which always prove Effectual unless the Person is in the last Stage of the Disorder. The Mineral Acids will be of no Service & we may in General observe that no Substances prove useful in this Disorder but those that are liable to undergo the Acetous Fermentation & are convertible into Succum et Sanguinem. The most powerful Antiseptic the Peruvian Bark itself will be of no Service without a Vegetable Diet & when this can be procured the Use of all Medicine be superfluous. Unless a Person begins to mend from the first Day he enters upon a Vegetable Diet there are no hopes of his Recovery & it is a general Observation that if a Person in the Scurvy lives two Days after being brought on Shore & using Vegetables he will get well. When a Person is brought

so low with this Disorder that his Stomach can not retain & digest Vegetables there are no hopes of his Recovery. Of the Efficacy of Vegetable alone in curing the Scurvy there was some time ago an Instance in the Pennsylvania Hospital. A Person was admitted for this Disorder who tho' not in the last Stage was very much Affected with it. He was put upon a Vegetable Diet from his first admission - he recovered in a short time without the Use of any other Medicine than the Elixier Vitriol a few drops of which were ordered him two or three times a Day with a little Water. This was given more to satisfy the Mind of the Patient than from any Expectation of its Usefulness. The two Cases mentioned above were cured by Abstinence from Animal Food & living on Vegetable without the help of any Medicine. The Tumors were disengaged with by Bathing them with Vinegar & Lime Juice. Of Vegetables Cresses are particularly adapted for this Disease - they may be taken in such Quantities as to afford Nourishment - By their Stimulus they will encrease the Secretions & Excretions by Stool Urine & Sweat & thus carry off the degenerated Fluids while at the same Time they will correct the

the putrescence of the remaining Part by their  
 & Acescence. For drinck Lemonade & weak punch  
 will prove most grateful to the Stomach will  
 obviate the putrid tendency & encrease the Eva-  
 cuations by Stool & Urine. The different Symtoms  
 which occur are to be treated in the same Manner  
 as if no Scurvy was present. The Tumors are best  
 discusse by bathing them with Limejuice &  
 Vinegar.

Not only the recent Vegetables but also those  
 that are preserved are Excellent preservatives  
 against the Scurvy - of this we have had a re-  
 markable Instance not long ago. We may ob-  
 serve that Physicians have in general conducted  
 less to the Improvement of our Knowledge in  
 the Nature & Cure of this Disorder than Sea Men  
 Such as Lord Anson, Capt. Cook &c. Capt. Cook  
 in his second Voyage round the World carried with  
 him great Quantities of Cabbage preserved by Salt  
 Known by the German Name of Sauerkraut,  
 during his whole Voyage which was of Three  
 Years he lost but five Men two of whom died  
 of Consumptions, two by Accidents & one of a  
 Fever. Not the least Symptom of Scurvy appeared  
 among

among his Men. This remarkable Healthiness —  
he attributed entirely to the Sauer Kraut & also to  
the free Use of Vinegar. This Sauer Kraut is the  
Invention of the People in the Northern parts  
of Europe & is used during the Winter by all  
those who inhabit the Countries to the North-  
ward of Great Britain. Before it is boiled all  
the Salt is carefully washed out & it is rendered  
slightly acid.

I have been thus full upon this Disease  
not merely to make you acquainted with the  
History & Nature of it, for that you might find  
in every Book but chiefly to shew you the Effects  
of Diet in Medicine. It is however of the utmost  
Importance for a Physician to be acquainted  
with this Disorder for it serves to confirm  
the Opinion that the Fluids may be primarily  
affected — how gradual is it in its Approach!  
How certain in its Effects! How fatal in its  
Consequences.

When the Solids are affected we observe  
that the Attack is sudden — in this Case the Cure  
is to be performed by Medicines. In the former  
Case the Disorder is not to be removed until an  
intire

entire change in the Fluids by Diet. It is  
said that no less than 86000 Men died in  
the Service of the King of Great Britain in  
the War before the last of the Scurvy.

I have taken no Notice of the different  
Opinions concerning the proximate Cause  
of this Disorder, but have confined myself  
solely to that which appears to me most ra-  
tional & at the same time most readily  
accounts for the Method of Cure

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## Lecture 6.<sup>th</sup>

We are in the next place to speak of Drinks. The general use of Drink is to supply Fluid to the system to promote the Solution & to expedite the Evacuation of the Aliment out of the Stomach. Drink taken in moderate Quantities facilitates Digestion dilutes the Chyle promotes Absorption & thus assists Nutrition. When taken in large Quantities it urges the food out of the Stomach before it is sufficiently digested accelerates its motion thro' the Intestines by which means Absorption is prevented & hence hinders Nutrition.

Persons who fatten Fowls for the Market allow them no drink by which means they are fattened in a much shorter space than they otherwise would be all their food being converted into Chyle. Drink keeps fluid the Lymph by diluting it & hence prevents Obstructions & stagnation in the Glands & those Disorders which arise from these causes

110. The same thing happens in the Sanguiferous System; hence the whole is kept in a proper degree of fluidity - Secretion is carried on in a regular manner - the Inensible perspiration is kept up & thus the degenerated parts of our Fluids are evacuated before they can be accumulated so as to produce Disease. Capt Cook thinks that the reason why the Scurvy did not appear among his Men was as much from allowing them as much Water as they chose to drink as from any other cause for during the whole Voyage the Men were not reduced to an Allowance of Water. These Effects are all produced from simple Vitality & we may in general observe that all Substances are proper for drink in proportion to the Water they contain. Various substances have been added to render it more palatable or for particular purposes to render it more nourishing or more healthy - thus Malt is added to Ale & Beer to answer the first

Aids are added to Water to make it quench Thirst  
These may in general be referred to the following  
Aids.

1. Thirst is occasioned by a Defect of Fluids in the System by which the Secretion of the glands in the Mouth & Fauces is diminished & likewise by the Air drying the Mouth in its passage to & from the Lungs.
2. It is occasioned by solid Viscid Food if it be taken in large Quantities.
3. By Alkaline Aliment especially if it has acquired any thing of a putrefactive taint
4. Thirst is occasioned by an increase of action of the Heart & Liver more particularly when the heart is so increased as to constitute Fever. In this last Case the Thirst is out of all proportion to the heat of the Body & appears to be owing to a constriction of the fauces & is often intolerable. That the Thirst in this case arises from Constriction is evident from appearing in the cold fit of an Intermittent where there is no heat. It is only to be con-

ced by removing the Constriction. I am however  
to consider the use of Drunks in Fevers. —

Physicians have had very different Opinions  
on this head some enjoin their patients  
a rigid Abstinence from drunks while others  
indulge them to the utmost of their Wishes. For  
my own part I cannot believe that any In-  
convenience can arise from allowing our  
Patients drink plentifully provided he does  
not drink too large Quantities at once.

Large Draughts over load the Stomach in-  
crease Oppression augment the fever &  
thus prove hurtful. Moderate draughts  
frequently repeated are of considerable Ad-  
vantage. They increase the Excretions by  
Stool Urine & sweat supply fluids to the  
System & tend to keep up a gentle Respi-  
ration which has a great Tendency to moder-  
ate the fever. The heat is never so intense  
when there is a gentle Respiration. When  
Fever arises from a constriction of the fever  
as which we know to be the case from their

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their Clamminess & from the intolerable thirst  
which the patient complains of whilst he is drink-  
ing - it is only to be relieved by taking of the  
Constipation. This is to be done by holding a  
Pamaind or any other acid in the mouth  
which by stimulating the Ducts will occasi-  
on a more copious Secretion & Excretion of  
the fluids into the Mouth. In this case the  
cause seems chiefly local & is to be removed  
by local Applications. —

We are in the next place to consider what  
Drinks are best in particular fevers. In all  
Inflammatory fevers in general acidulated  
Drinks are the most proper - whether this is  
the case also in cases of Topical Inflama-  
tions as in Rhinitis & Pneumonitis is a  
Matter of Doubt. These disorders are gene-  
rally attended with a cough & it is well  
known that Acids will increase a cough  
for this Reason I have been deterred from  
using them in these Diseases altho' they

are in other respects very proper. I have made  
the Experiment & have always been obliged  
to desist on Account of <sup>increasing the body.</sup> If in any case they  
can be exhibited without this effect they will  
certainly prove useful. Generally in these  
Cases recommend a Pissare of barley-wa-  
ter in which some Raisins prunes or Le-  
guonice Root have been boiled. This affords  
an agreeable cooling Drink & also tends to  
keep the body open which is one of the prin-  
cipal curative Indications.

Acidulated Drinks are highly useful in  
putrid fevers, Dysentries, Bilious Vomiting,  
whenever there is a disposition to Putre-  
faction. In these cases Burnet Wine in  
which some Crum'd Tart. has been dissolved  
will & will afford a very agreeable  
wholesome Drink. This I have often  
found to be of great service & I have often  
times had Occasion to use no other Reme-  
dy in the Measles. It will prevent purpu-  
raneous Symptoms like Diankard & dysm-

try which are often the consequence of this disorder It has also this Advantage it has the appearance of Art with the patient & by this means the physician should always endeavor to rise above an Old Woman in his prescriptions.

Aridulated Drinks are not so proper in Nervous fevers. In these there is generally a great Oppression at the Stomach arising from Debility. Aids tend to encrease this Oppression & likewise to produce flatulencies. On this Account of Debility we cannot administer the Neutral Mixture so freely as in other disorders. Saline Substances given with a view of opening the bowels, often occasion flatulencies & Oppression. In these disorders something moderately stimulating & comfortable to the Nerves is required. Infusions of Sage or Balm, Wine Whey & in the advanced Stage Mustard Whey is attended with happy Effects.

Acidulated Drinks are very improper for  
those who are recovering from intermittent Fe-  
vers. During the cold fit our patients  
should drink nothing at all or at least as  
little as possible. During the hot fit,  
Intermittent Infusions of Chamomile  
or Centaury are undoubtedly the most  
proper. But our Patient oftentimes requires some  
thing more grateful & during the hot fit we may  
indulge him with acidulated Drinks but at no  
other time. Every thing which debilitates the Stomach  
will in Convalescents from Intermittents  
bring on a Return of the Paroxysm. It has been  
a question agitated among Physicians whether  
warm or cold Drink is most proper in Fevers.  
some are for rejecting cold Drinks altogether  
while others highly extoll them. In all Topical  
Inflammations & in Inflammatory Fevers in  
general cold Drinks are improper & should  
be altogether abstained from, but in all Nervous  
Putrid & Remittent Fevers they are much more  
proper than warm drinks & may be used with  
considerable

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considerable Advantage. This is evident from the Practice of the Spanish & Italian Physicians, who give their Patients in Remittent Fevers cold Water & in Summer cool it with Ice & find considerable Advantage from this Practice. In general we may observe that in all Inflammatory Fevers where the Action of the Heart & Arteries is too great cold Drinks are improper. In all Fevers where their Action is too weak & the Vis Vita sunk they are highly useful. In low Nervous Fevers nothing is so grateful to the Patient as a Draught of cold Water but with this Gratification they are frequently deprived thro' the Prejudice & Ignorance of the Physician. Cold Drink in these Cases is much preferable to warm which relaxes the Stomach & System already too much debilitated.

Drink should be frequently administered in a Nervous Fever often than they ask for it for they have generally a Delirium & a perfect Insensibility to their own Concerns— It has been a common Custom in this Country tho' not so much now as formerly to drink large Quantities of

Punch in warm Weather. This is a very pernicious Custom - The Acid weakens the Tone of the Stomach, produces Flatulencies & lays the Foundation for the Gout in the Extremities, in the early Period of Life & in the Stomach & Head in a more advanced Stage. The Spirit contributes by a slow but as sure Degrees to the same End. A Remarkable Instance of the Effects of Intemperance we have in the West Indias. The Men who are in general very Intemperate seldom arrive at any thing like old Age but are generally carried off at an early Period of Life. The Women who lead a ~~very~~ Temperate Life are in general ~~very~~ healthy & often live to a very old Age.

We are next to speak of the Use of Drinks in the Drapsey. This is in general accompanied with a great Thirst from a Constriction of the Fauces which is not to be relieved by Drink & as there is <sup>too</sup> great a quantity of Water

in the System Drink seems to be highly impro-  
per. I knew a Surgeon of Eminence in London  
who was cured ~~of~~ of a Dropsy by a rigid Absti-  
nence from all Kind of Drink - His Abdomen  
was so much distended with Water that it  
was actually burst, the Cicatrix of which he  
bears to this day - He kept a plum or Tama-  
rin constantly in his Mouth & sometimes  
moistened them with Wine in order to allay  
the intolerable Thirst, but no Fluid whatever  
passed his Tongue. It is true some people have  
been relieved of a Dropsy by drinking large  
quantities of Water & bringing on a Vomiting  
Purging & a copious discharge by Urine. This  
is not owing directly to the Water but it proves  
the Cause of the Cure immediately by its Stimulus.  
It is however a very precarious Remedy and  
if not attended with those Effects must certain-  
ly prove Destructive -

We are in the next place to consider Condi-  
ments - Condiments are all such substances as

are taken in with our Food to correct any bad Tendency it may have or to render it more palatable & agreeable to the Stomach. The first to be considered are the Aromatics — These are certain acrid Substances which we take in with our Food to render it more palatable. In the warmer Climates are Cinnamon Nutmegs Cloves, Mace, Pimento &c. Analogous to these in the Northern Climates are the Seeds of Anise, Caraway — Fennel, Coriander &c. and all the sweet Herbs — They stimulate the Stomach promote the Peristaltic Motion, are Antispasmodic, taking off the Spasm in the alimentary Canal & Antiseptic. From these qualities they appear to be very proper to accompany Vegetable Food & hence the Use of them should be confined to the warm Climates of which they are the Produce the Inhabitants of which live mostly on Vegetables as Rice Milk, Dates &c. In the Northern Climates where they live chiefly on Animal Food they are very improper. They increase the stimulus of

of the Food & render the Fever which always accom-  
panisit greater Digestion greater. Animal  
Food is of itself sufficiently Stimulating and  
savory without their Assistance. They ought  
principally to be avoided in the Prime of Life  
as like all other Stimulants they destroy the  
Tone of the Stomach & lay the Foundation for  
early Diseases. Persons who use these Substan-  
ces freely early in Life when old Age comes on are  
troubled with Flatulencies, Indigestions, Costiveness  
hence Obstructions in the Liver & other Viscera &  
the whole Train of Disorders consequent upon these  
are produced. If they are very proper it is only in  
old Age when the Corpse State of the Stomach requi-  
res something stimulating to excite its Action -  
The Condiments most proper to accompany Animal  
Food are the different Kinds of Cresses, Radish  
Horse-Radish, Mustard & all other plants of this  
Kind. They stimulate the Stomach are Diuretic  
Diaphoretic & thus carry off the degenerated -  
Parts of the Fluids. The same may be said of Leek

Onions & Garlick which also very properly accompany Animal Food.

The Condiments more generally employed are Salt, Vinegar & Sugar.

Salt is that most universally employed it is the most sapid & least apt to pall. It has been said to be Antiseptic. This seems to be contradicted by our using it with Vegetables, & Carniverous Animals are poisoned by it whereas the Graminiverous are very fond of it & surely it can not act here by any Antiseptic Quality. Salt is particularly proper to accompany a Vegetable Diet. It stimulates the Stomach assists Digestion excites the Appetite & promotes the Secretion of Saliva and the Gastric Liquor. Animal Food preserved with Salt is indeed hard & firm & of Difficult Digestion & thus predisposes <sup>to</sup> the Scurvy & other Putrid Disorders. Salt Meat is also very proper for Persons troubled with Worms particularly the Tape Worm. When Salt is applied to Worms out of the Body it is found

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to destroy them. Sheep are subject to a Disorder called the Rot it is owing to a Worm in the Liver. Salt is found to cure it if Salt be given to the Sheep from Time to Time they will never be afflicted with this Disorder. For this Reason the Farmers in those Countries where Salt is plenty put large pieces of Rock Salt into the Sheep Folds that the Sheep may lick it when ever they have a Mind. Whether this first gave the Idea to the Physicians of prescribing Salt for the Cure of Worms is immaterial. Certain it is that much Benefit has been received from its Exhibition. Dr. Rosen <sup>on Rosenstein</sup>, lately first Physician to the King of Sweden, always directed his Patients to live two or three Weeks upon Salt Meat before they took any Medicine for Worms. He also directed them to eat a piece of Salt Meat or Fish, Herring for Instance, for Supper & not to drink ~~anything~~ for some Time after it, by this Means the Worms were not only deprived of their proper Nourishment but were also exceedingly distressed by the Salt & also yielded more

readily to the Medicines administered. A good  
Domestic Medicine for Worms is a little Salt  
mixed with Molasses & taken every Morning for  
two or three Weeks this will seldom fail to effect  
a Cure. Salt has been much recommended of  
late as a Specific in spitting of Blood as  
also in Vomiting of Blood. I have given it  
a fair Trial in four Cases. The Dose is two or  
three Spoonfuls a Day either dry which is the  
best Method or Dissolved in Water. In one  
Case in which I tried it, it had no Effect. In  
three other Cases the Complaint was relieved  
but other Medicines were combined with the  
Salt which might have as great a Share in  
producing Relief as the Salt. In the two follow-  
ing Cases it had very good Effects. I was called  
upon to visit a Gentleman then about 32 years of age  
whom I found spitting up clear Blood from  
his Lungs - He had never been troubled with  
this Complaint before & was free from pain  
or any uneasy Sensation in the Breast &  
his Pulse was neither hard nor full. He  
Knew

knew not what to attribute this Disorder to unless  
that some Days before he crossed a Creek which  
proved to be deeper than he expected so that  
his horse was obliged to swim & he got wet up  
to the middle. I ordered him to loose about  
3ij of blood & 3ij Sal. Glauber to be taken <sup>2<sup>o</sup></sup> hora  
The Medicine opened his Bowels gently & he  
was relieved considerably of the Spitting of  
Bloods. I advised him to continue the Me-  
dicine & to use Barley Water for common drinck  
& to live very low. But the next day in the  
Afternoon the spitting of blood returned as  
bad as before altho he had taken the Medi-  
cine regularly & strictly complied with the  
Regimen I prescrib'd. I then ordered him  
to loose 3vj more of blood & to take 3ij of  
Pulv: Sal: Marin: quaque secund: hora by this  
course in a very little time recovered of his  
complaint & has never had a return of it  
to this Day. Some Time after I was called  
to visit a Lady about 50 of a delicate  
habit of body who had been troubled all

the Winter & Spring with what is commonly called a cold & troublesome cough & uneasiness in the breast & low fever. The Day I saw her she had been seized with a spitting of pure blood from her lungs. As she was rather weak & never bore bleeding well I ordered her to lose only 3vij of blood & to take 3js Sal: glaub: quagg secund: hora. As this produced no relief & the case was now attended with faintings truly alarming I ordered a blister to be applied to the upper part of each arm & half <sup>an</sup> <sup>ounce</sup> of a Teaspoonful of common Salt to be taken every 2 hours As this disagreed very much with her Stomach I ordered a strong Solution of Salt & Water to be made of which she was to take as much at a time & repeat it as often as her Stomach would bear This still continued to nauseate her Stomach as indeed every thing did she took She was after some time relieved of her complaint & has had no return of it. She used

The Solution for several Weeks after he was delivered & continued under a very strict Regimen for several Months. I have since had Recourse to Salt in several other Cases always with evidently favorable Effects. —

Vinegar gives a grateful Taste to our aliment stimulates the Stomach & excites the Appetite It is a very proper Condiment for Animal food as it resists the Tendency which that has to Putrefaction. It is also very useful with Vegetables as it determines to the second Fermentation & thereby prevents the bad Effects of the Vinous. For during this last as we have already laid the noxious Gas is generated. Vinegar however to produce these Effects should be pure & unmixed When it contains a Portion of unfermented Saccharine Matter it is liable to undergo the Vinous Fermentation & to produce all the bad Effects of recent Vegetables. — Sugar is one of the chief Ingredients Vin-

dicted the principle of Nourishment in Vegetable Aliment. I am not now however to consider the nutritious qualities but to speak of it as a Condiment. It cannot be used for any length of time & in large Quantities as it will pall the Appetite. It is liable to undergo the Vinous & putrid Fermentation & hence is capable of producing all the bad effects of meat acids & Vegetables. It is powerfully anti-septic & hence is a very proper condiment for Animal Food with which it ought to be used in preference to common Salt. Meat preserved by sugar is not rendered so hard as that preserved by common salt & hence is more soluble & easier Digestion. This we may observe very readily in bacon. Some people have their bacon much more soft & juicy than others which is entirely owing to the mode of curing it. Those who use sugar along with their Pickle will have their bacon much

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much nicer than those who use Salt alone.  
It is likewise observed that the hogs in the  
West Indies which live on Cane have their  
meat much more tender than those which  
live on other food. It is customary among  
the People in the Northern parts of Europe,  
to use sweet Sauces with their Meat especi-  
ally in the Winter. It is also the practice in  
some part of New England to use Mela-  
ses with their bacon & other meat; chiefly  
in the Winter, for in the Summer it is  
not either useful or necessary. This is a  
very judicious practice. As Sugar is liable  
to undergo the Vinous & Acidous Fermenta-  
tion it is prejudicial to those who are trou-  
bled with Flatulencies Indigestion & a  
prevailing Acid in the Stomach by increas-  
ing that Acid. It is useful in all cases  
of Rigidity & whenever there is a Disposition  
to Putrescency.

Sugar has been accused of producing disorders

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of the Teeth. This it was thought to do by sticking  
ing to them becoming acid & then corroding  
them. But how so soluble a substance as  
Sugar can stick to the teeth & corrode them  
especially if we consider it must ferment  
before it becomes Acid; is to me perfectly  
unintelligible. How can an acid corrode  
the Teeth when we see that whole Nati-  
ons live upon Raisins which are much  
more acid than Sugar without having  
their Teeth affected more than others  
who taste Sweets. It is probable that  
hot Teas, hot Coffee & the free use of spi-  
rituous Liquors contribute much more  
to produce Disorders of the Teeth than  
Sugar. There are two Causes to which  
Principally affix the early Loss of  
Teeth in this Country. —

In the first place I think we may justly  
accuse the Climate. There is no place  
where the Vicissitudes of heat & cold  
are greater than here - hence we are

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subject to Rheumatic Affections of the Head  
& Face which generally affect the Teeth —  
The second Cause operates chiefly on the fair  
Sex. They are frequently troubled with Indi-  
gestions & other disorders of the Stomach  
which we know affect the Breath & teeth  
Foreigners observe that the Women in ge-  
neral of this Country have bad Teeth —  
Sugar has also been accused of producing  
increasing Worms in the Body. It has  
however quite a different tendency for  
when applied to a worm out of the body it  
will instantly kill him. Whilst a Worm remains  
at Rest in the Intestines the Patient is easy but  
when he crawls along the sensible Membrane of  
those parts a great pain & often Convulsions are  
produced. This often happens when the Patient  
has eaten a Quantity of Sugar & it is commonly  
ascribed to the Worm moving towards the Stomach  
through Eagerness to get at his favorite Food.  
But we find when Milk the proper Nourishment

of Worms is taken no such Effects follow; And we often find that Convulsions are produced when any Efficacious Medicines are taken to destroy the Worms. We must therefore conclude that these Effects are owing to the Worm moving from the Stomach by that principle of self preservation which teaches him to avoid the Food which would prove his Destruction as it is to him a Poison. It is highly probable that the less frequent Appearance of Worms & the Disorders arising from this Cause is owing to the more general Use of Sugar.

Since the Use of Sugar has become more common many Disorders which formerly were very frequent seldom or never appear. A great Change has lately taken place with regard to Diseases. In the last Century when people lived principally upon Meat & strong Food the Diseases were in general of the Inflammatory & putrid Kind. Since Tea & Coffee with Sugar have been generally used those Disorders have been

been greatly diminished & the whole Clan of Nervous Disorders have made their Appearance which were very early known among our Ancestors. If we consider that Nervous Disorders are not so fatal as Inflammatory & putrid and are more readily cured we shall have great Reason to be satisfied with the Change. We are also relieved from that loathsome Disease the Leprosy which frequently afflicted our Ancestors who were obliged to build Lazarettos or Hospitals to confine the Lepers & to cut them off from Communication with the healthy.

If we likewise consider that our Intellectual Faculties are as much improved by living on Vegetable, as those of our Ancestors ever obtained by living on gross Animal Substances we would have still more Reason to be satisfied with the Change in Diet. That Animal Food dull the Faculties artful Gamblers bear Witness. I have heard of a Gentleman who realized a princely Estate by his Skill in Chances whenever he

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he expected to be deeply engaged in Play in the Evening he abstained from Dinner and confined himself to his Room the whole Day meditating upon & calculating the different Chances, taking for Nourishment only Tea Coffee or very thin Broth.

The finer the Sugar the less subject it is to Fermentation! Coarse Sugar is more fermentable hence becomes more acid & laxative. Many however have been deterred from using fine Sugar on Account of the Quick Lime which <sup>enters</sup> into the Composition of Sugar Indeed Quick Lime is employed for the Coarse as well as the fine Sugar & it is not so entirely separated from the former as the latter The fine Sugar should be preferred to the Coarse on all Accounts. The fine possesses all the good Qualities of the Sugar & none of the bad.

The Vegetables preserved with Sugar have all the same Qualities with the Sugar itself & no other except the acrid Substances as Ginger

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Cicampagne &c. which retain some of their original Qualities. In general insipid Substances or such as are rendered so by boiling are preserved by Sugar.

Vinegar Preserves have the same Qualities with the Vinegar itself. They are rendered very difficult of Digestion & are therefore highly improper for Persons of a weak Stomach. Dr. Cadogan inveighs much against them but tho' they may be very hurtful in the Disorders he treats of the Gout & in all Cases of a weak Stomach, they are <sup>a</sup> very proper Condiment to accompany Animal Food, when a Person is in Health.

We have now finished the Consideration of Vegetable Food & are to proceed of Animal Food, which shall be the Subject of our Lecture Gentle, men to Morrow at the usual Hour.

# Lecture 7th

Animal Food differs from Vegetables in many essential Points.

- 1 As it is already of an Animal Nature, it requires only Solvation & Mixture to be converted into our Fluids, whereas the Vegetable stands in Need also of Assimilation.
- 2 As it is more easy of Digestion it does not remain so long in the Stomach.
- 3 It is more Nourishing &
- 4 It disposes to Inflammatory & Putrid Diatheses. The Consequences of a too free Use of Animal Food are all kinds of Putrid Diseases, as Putrid Fevers, Scurvy, Dysentery &c. Animal Food is more stimulating than Vegetables; hence the Fever attending Digestion is more considerable after a full Meal of Animal Food than of Vegetable. Animal Food also gives a richer & denser Blood. On these Acco<sup>r</sup>d it should be avoided in all Inflammatory Fevers, Apoplexies & by Persons who are subject to Hemorrhages.

Hæmorrhages particularly from the Lungs. Young Persons especially Children should use Animal Food very sparingly & live principally upon Vegetable Food. Animal Food like every other Stimulant proves injurious by wearing out the Tone of the Stomach. Persons likewise who are employed chiefly in Mental Exercises ought to live more upon Vegetable than Animal Food.

The Solubility of Animal Food differs according to the Age of the Animal. The Flesh of full grown Animals is more soluble than that of young Animals - thus Beef is more soluble than Veal, Mutton than Lamb &c. By full grown I mean the most perfect state, when the Animal has acquired its full Growth, both in Size and Circumference, not when grown old, for the Muscular Fibres become rigid & tendinous & the Flesh of old Animals is therefore very insoluble - Animal Food is more soluble according to its Alkalescency & hence Venison & all Kind of Game are of easy Digestion. - Animals as they become older are more alkalient & on this Account the flesh of young Animals is more insoluble

luble than that of old ones. Solubility also differs according to Viscosity. The more viscous & glutinous Food is, the more difficult of Solution it is - of this Truth Turtle is an Instance. This is one of the most viscous Substances & would scarcely be conquered by our digestive Organs were it not for the Method of dressing it. It is mixed with great Quantities of hot Spices which stimulate the Stomach & excite it into Action by which it is enabled to digest this Food. The Flesh of young Animals is more glutinous than that of old. In young Animals the Glands are larger & more numerous than in the old & their Bodies abound more with Mucus & Gluten. In young Animals the Muscular Fibres are more compact with little or no Cellular Membrane interspersed between them & on this Account also young Animals are less soluble than the older in which the Muscular Fibres are separated by Cellular Membrane & Fat. On this Account also the lean of fat Meat is easy of Digestion while

the leane of poor Meat is of the most difficult Digestion - Meat is more preferable according to greater or lesser Alkaleness & according to its viscidity - That Meat is most ~~preferable~~<sup>expiri</sup> which is most glutinous - hence Mutton & Venison which are most Alkaline are most ~~preferable~~<sup>expiri</sup> perspirable - Oysters & Fish from their Viscosity & little Alkaleness are least perspirable From these Qualities we see that Oysters & Fish are very difficult of Digestion, They overload the Stomach & increase the Fever that attends Digestion. They remain longer in the Stomach whence may prove very nourishing but then they should be used only by such Persons as are capable of digesting them such as work hard or use a great deal of Exercise Persons living near the Sea & living principally on Oysters & Fish are very Robust. They are liable to Eruptions on the Skin, Scurvy & Dysenteries & other Disorders of a Putrid Tendency -

We have by Nature an Aversion from living on Fish for any length of Time. This we observe

in the Salmon Fishery. The Servants employed  
in it make an Agreement with their Masters  
that they are not to live upon Fish more than  
two Days in the Week tho' the Salmon is one  
of the most delicious & savory Fishes. Solubility  
differs likewise according to the Manner  
<sup>in which</sup> the Meat is dressed. Meat by much boiling  
or roasting is rendered ~~more~~ firmer & less  
Alkaline & of consequence less soluble.  
That Meat by boiling is rendered less Alka-  
lescent is evident from the Practice in the  
West Indies & even this Country. In Summer  
when Meat has a Tendency to Putrefaction  
we par-boil it by which it will keep sweet  
a much longer Time than it would otherwise  
do. In the West Indies this Practice is called  
Jirking.

The next Subject we are to treat of is  
Milk. This is of an intermediate Nature between  
Animals & Vegetables. As it is of some Con-  
portance in both Medicine & Diet it deserves

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a particular Attention. We shall first treat of  
its Secretion.

In all Viviparous Animals both Male  
& Female there are certain glandular Substances  
called Mammae or Breasts by which the Milk  
is secreted. They are the softest & least resisting  
of any Glands of the Body. They are placed but  
side of the Ribs free from all Compression being  
covered only with a Smooth ~~Skin~~ thin, soft  
Skin. These differ from all other Glands in this  
Respect, that the latter secrete their Fluids  
different Fluids at all Times while the former  
secret only at a particular Time. The Cause of  
their secreting only at particular Times has  
afforded great Matter for Dispute amongst  
Physicians. It appears plainly that there is a  
great Consent between the Uterus & the Mammae,  
thus the Breasts swell & become painful at ~~times~~  
the Time of the Menstrual Flux. This Consent  
must be owing to the Communication of Blood  
Vessels particularly to an Anastomosis between

the Epigastric Artery & the Arteries which go  
to the Mammae. Whenever the Epigastric  
Artery is compressed the Blood is determined  
to the Mammae. Bartholine tells us of a  
Youth afflicted with a Hernia whose near  
Pap always began to swell when <sup>the Tissue</sup> which sup-  
ported the Puspture was tightened by  
which the Epigastric Artery was compressed.  
During Gestation when the Epigastric Ar-  
tery is compressed by the gravid Uterus the  
Breasts swell. After Birth when that Arte-  
ry is freed from compression the swelling  
of the Breasts subsides from the new Deter-  
mination which takes place. They swell re-  
markably after Birth upon the cessation  
of the Lochia when the fluids are determi-  
ned from the Uterus to the Breasts.  
From this new Determination it is that  
we may understand why in infants a few  
Days after Birth there is sometimes Milk  
secreted. After the Umbilical cord is  
tied the Blood which formerly passed

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that Way runs into a new Channel. This new Passage is productive of such an ~~influence~~ impetus as to produce a discharge of blood from the Utens of Infants. Instances you will see in the Transactions of the Royal Academy of Sciences at Paris. From what has been said we are led to ascribe the Secretion of Milk to a diversion of blood from the Opi-gastric Artery to the breasts entirely independent of Mæthoræ. All Women at Child-birth are not Mæthoræ yet they secrete milk plentifully. The Milk begins to be secreted immediately after Birth tho' a great deal of Blood has been lost at that Time.

Nay there are Instances of Women loosing several lbs of blood on account of diseases besides the blood which they had lost in Delivery yet milk was secreted plentifully. It is even said that some women have suffered a Diminution of 16 lbs of their Weight in 6 Weeks Time yet gave

Milk sufficient to nourish their Child,  
For the Secretion of milk depends upon the  
Derivation of the blood to the Mammas  
it is considerably increased by Suction  
nay there are instances of a flow of Milk  
being brought on by Suction in Virgins &  
even in Men. Such instances occur in  
Haller Russell & De Graaf. After a flow  
of milk has been brought on if the Child  
is not applied to the breasts or if they are  
not sucked the milk will be lost. The  
Child should be applied early to the breast  
on this account & when this is done the  
Ducti Lactiferi are stimulated & the  
fluids are discharged by which Obstruc-  
tion & stagnation in the finer vessels  
are prevented which often occasion  
Schorri & other Disorders of the Breast.  
In the Lying-in Hospital at London  
since the Physicians have obliged the  
Women to give their Children within

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24 hours after Delivery not above 2 out of  
1000 have been afflicted with Disorders of  
the Breasts whereas formerly when the  
Child was not applied to the breast for 3,  
4 or five Days after Delivery their Com-  
plaints were very frequent.

Milk consists of three parts.

1. The oily part or Cream. This in a great  
measure resembles the vegetables expressed  
Oils & seems to be derived from them.
2. The Coagulable part which is of an ani-  
mal Nature & greatly resembles the whites  
of Eggs.
3. Water in which some saline or saccha-  
rine Matters are dissolved These 3 Sub-  
stances may be procured separately in  
the form of Butter, Cheese & Whey. —

Milk has commonly been supposed to be taken up  
into the Lacteals without suffering any Decomposition  
This Notion is erroneous, it is decomposed in the  
Stomach coagulated, fermented & afterwards taken

up by the Lacteals & mixed with the Blood.

As Milk is an intermediate Nature between Animal & Vegetable, it is particularly calculated for the Nourishment of our Bodies. It is particularly proper for the Nourishment of Children & we find it is furnished by Nature for them as soon as they are born. For a Person in an Aëtic Fever it is particularly adapted. Milk has the good Qualities of both Animal & Vegetable Food & is exempt from any of the Inconveniences that attend the Use of either. Thus it is not subject to the Vinous fermentation & hence is not liable to produce Flatulencies &c. which arise from Vegetables. It is likewise not attended with the <sup>Fever</sup> Stimulus of Animal Food. It is hurtful to those only who have a strong Acid in the Stomach for in these the Coagulum or Curd that is formed is so hard ~~that~~ as to be incapable of Digestion. Milk may also be hurtful to Persons recovering from Intermittents as it tends to cause Refrigeration by its Aëcency.

Asses, Mares & Human Milk are not so ~~ascent~~<sup>ascend</sup> nor so easy coagulated as the Milk of the Cow, Goat & Sheep & form a more ~~suitable~~<sup>do not</sup> soluble Coagulum. The former contain ~~so~~ so much Oil & coagulable Part & are very proper for Persons without Fever whilst the latter from their Ascency are better calculated for Persons with Fever - These last may be coagulated by Acids & different Coagula hence are not so proper in weak Stomachs. The Milk of the Cow & often Goat contain nearly the same Quantity of Cream, Coagulable part & Whey - That of the Sheep contains less Whey & Coagulum than the other - Human & Asses Milk have been preferred to the others in some Disorders. It may not be amiss to inquire hereinto the Cause of this Preference & the Foundation of it. Asses Milk is not so ~~ascend~~<sup>ascend</sup> as Cow's & cannot be coagulated by the various Coagula or Rennets. By Rest or Stagnation it <sup>separates</sup> appears

spontaneously into several Parts - the coagulable part falls to the Bottom - the Cream rises to the Top & the Serum occupies the middle Part. It contains a large Quantity of Whey & very little Cream or Cheese. It is even said that no Butter can be obtained from Asses Milk. Mares Milk is very similar to that of Asses - contain still less Oil.

Human Milk is not coagulated by the Rennets commonly employed for coagulating Milk - even the strongest Acids will not coagulate, neither can this Effect be produced by boiling it, but if it is placed at Rest in a heat of  $96^{\circ}$  this Separation will take place of itself. This Separation takes place in the Stomach as appears when Infants throw up their Milk by Vomiting. From all this we see that the Distinction is founded in Reason. When the Stomach is so weak as to resist Cows Milk it will sometimes bear Asses or Human Milk & we accordingly have Instances

ces of Persons who were snatched from the Jaws  
of Death by sucking a healthy Nurse. Human  
Milk differs very much in different Women—  
In some it is white & thick, in others diluted  
& thin with little Cream. The Milk of Nurses  
is very little affected by their Food much less  
than that of ruminating Animals. It is doubt-  
ful whether Purgatives given to the Nurse will  
affect the Child. Nurses laboring under Dis-  
eases very often give good Milk. There are Instances  
of Nurses who are affected with Venereal Disease  
while the Children who sucked them <sup>continued</sup> remained  
free from it & I have known two Instances of  
Nurses having taken Mercury until their  
Mouths were sore, whilst the Children were  
not in the least affected; nor will their Milk  
change Silver black or Gold White as we know  
the Perspiration of People taking Mercury  
will do. This strongly confirms an Opinion formerly  
advanced that the State of the secreted Fluids

Depend more upon the secretory Organs than the State of the Fluids from which they are secreted. The Passions of the Mind have a considerable Influence upon the Milk, & there are Instances of a sudden Fit of Passion producing such a change in the Milk that the Children sucking the Nurse have been thrown into violent Convulsions & Death has ensued when the Milk has not been thrown up. In these Cases the sudden Change produced must be owing to an Alteration made in the Breasts or other Organs of Secretion, it also occurs in the Organ of Digestion. Thus sudden Insults or unexpected Tidings affect Digestion & will suddenly render every Thing contained in the Stomach vitiated & corrupted. We are next to speak of the part <sup>from</sup> in which Milk is secreted. There have been very different Opinions on this Head. Some assert that Milk is secreted from the Blood whilst others think it is entirely derived from the Chyle. It is very

difficult to determine the Point as we do not know the true Analysis of Chyle nor how much enters the Blood in a giving Time nor how long before it is converted into Blood. The Advocates for the latter Opinion assert that it is <sup>im</sup>probable that such large Quantities of Milk as are secreted in one Day (there being Instances of some Women that have given 6 Quarts in 24 Hours & some Cows give 24 Quarts in that Time) should be derived immediately from the Blood. They likewise show that Milk & Blood are of a very different Nature. Milk resolved into a Coagulate Part Cream & Whey. It is acescent & Blood is putrescent. There seems to be some Truth in the latter Argument. The former is not at all conclusive because as I have said above we know not the exact Quantity of Chyle that enters into the Blood in a giving Time nor how long it is before converted into Blood. The Opinion of Milk immediately derived from the Chyle is further confirmed

from Dr. Young's Experiment of a Bitch -  
whose Milk he found to be alkalescent  
when he fed her upon Animal Food but  
on the contrary when she lived upon Vegetables.

Milk by boiling is rendered acescent  
& consequently less laxative - it should be  
used when new rather when long drawn  
so that it has had Time to separate. The Milk  
of ruminating Animals is more difficult  
of Digestion than Human Nurses or Mares  
Milk, it contains more Oil is more acescent  
& partakes of the Nature of Vegetables. It  
is therefore very serviceable in all Cases of  
Putrid & Inflammatory Diatheses. In these  
Cases Butter Milk seems to be rather better  
as it contains less Oil & is more acescent  
cooling & laxative. The properties of Whey  
are nearly the same with those of the Butter  
Milk & may be employed in the same Cases.  
This is excellently calculated to produce a  
change

Change in the State of the Humors & will often  
be serviceable when the pure Milk will be impro-  
per. Milk is very excellent in for Persons recov-  
ering from Inflammatory Fevers. Milk is very  
serviceable in Hectic Fevers & Consumptions.  
In these Cases Human & Asses Milk have been  
preferred - Persons in these Cases should not  
be restricted to any Quantity but should take  
as much as the Stomach will bear. Riverius  
& Hoffman give us Instances of Persons res-  
cued from Death by this Practice. Pennet  
Whey is likewise very serviceable in these  
Complaints & in internal Ulcerations of all  
Kinds. This will often be retained when Milk  
is rejected. A Milk Diet has been recommended  
in the Gout ~~as~~ it is accompanied with Inflam-  
matory Symptoms, but in old People who are gene-  
rally afflicted with this Disorder. The Nervous  
System is generally weak & requires something  
more Stimulating than Milk. It is not safe

+ to mitigate the Inflammatory Symptoms by  
Evacuations of any Kind. Though some have  
found Relief from a Milk Diet it is not al-  
ways safe to adhere to it in all Cases after  
the Stomach has been used to stimulating  
Food. A Milk Diet will indeed prevent the  
Appearance of the Gout in an Inflammatory  
Form in the Extremities, but then other  
Disorders will be produced as fatal in  
their Consequences if not more so than the  
Gout. Old Persons should have a considerable  
Degree of Vigour remaining if they expect  
to be relieved of the Gout by a Milk Diet  
or indeed by any Medicine whatever. In  
young People there is nothing to forbid  
the Use of Milk in this Disorder & it is  
particularly proper to correct an Infla-  
matory Deathesis. In these accompanied  
with a proper Use of Exercise & abstinence  
from Wine & Venery a Milk Diet will be  
productive of very happy Effects. -

If you recollect what I said on the Scurvy you will easily see that Milk is very useful in disease especially Cows & Goats Milk & more particular  
lately Whey & Buttermilk.

Milk is very serviceable where Poison has been inadvertently swallowed. There is no Remedy better calculated for Emergencies of this kind. It involves & obblangs the Stomach of the Poison & by its diuretic Effects guards against the Spasms of the Stomach. Hoffman tells us of 10 boys who had taken Arsenic mixed in an Oaten Cake for the destroying of Vermin who were all cured by drinking plentifully of warm Milk. It defends the tender Coat of the Stomach & guts from the Astringency of the poison & serves as a very good Vehicle to carry it off. There is likewise this Advantage in Milk that when Children have swallowed Poison we can more easily persuade them to drink a larger quantity of it than of Sweet Oil or warm Water. Persons who have swallowed Poison should live for some Time after they have been

freed from any immediate Danger upon a milk diet & take now & then a Dose of Castor Oil for there are Instances of persons dying from Poison being swallowed a considerable Time after they were thought to be quite out of Danger.

Milk is very useful in Disorders of the Bowels as Diarrhoeas & Dysentery which are often mitigated & sometimes cured by the use of it after more potent Remedies have failed. In these Disorders the natural mucus of the Intestines is abraded & the milk by its demulcent & glutinous Quality supplies its place. By boiling Milk is rendered more glutinous & consequently is then better adapted for these Diseases. To render the milk more glutinous various Substances have been added. A Woman near Germantown acquired great fame for a supposed Specific she prepared for a Flux Upon Inquiry

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Inquiry into the Matter I found her Secret consisted in boiling a Sheet or two of white Paper in Milk. Another Domestic Medicine is a Sheet of Mutton Suet boiled in a pint of milk & drank at once at bed Time. Occasionally repeated. This I have used with singularly good Effects. All these Preparations act by their demulcent & oily Qualities depending the Guts & applying the place of the natural Mucus. Marsh Mallow Comfrey Root Sago or Salep or if the composition is to be more medical Gum Pragacantha or Gum Arabic boiled in milk will produce equally good Effects.

Milk is particularly proper for producing a change in the Humors when we wish to extricate a constitutional Disease in which the fluids & Solids are affected. Milk has been recommended in Cancerous & Scrophulous Diseases. In those there is generally a vitiated state of the humors & a change in the

humors I have told you already is only to be brought about gradually & more by diet than any thing else. Milk is better adapted for this purpose than any other substance we can employ. Sylvaticus tells us that he relieved a Person of a cancerous Tumor in the Neck of the Uterus which had been there a considerable Time by a Milk diet alone. When a Cancer is ulcerated a sanguis ichorous Matter is discharged which causes great pain to the Patient. This Discharge is increased by every thing that is stimulating & is relieved much milder by a Milk Diet. Milk is also of the utmost utility in Venereal Complaints. Hoffman tells us of a military Gentleman who had been for a long time afflicted with the Venereal Disease & was at last cured by a diet of Apples Milk without any other Remedy. The late Dr. Monro likewise gives us the bases of two

young Gentlemen who were afflicted with  
Veneral Ulcers for which they had taken a  
variety of Medicines & had been repeatedly  
falsified. The ulcers however continued  
to increase both in Breadth & Depth. The  
Doctor at length advised them to go into  
the Country & live solely upon a milk  
Diet. They followed his Advice & in about  
six weeks time were perfectly cured.

From hence we see that Milk deserves the  
most important Consideration. It is fur-  
nished by Nature for all young animals  
& is particularly fitted for their nourishment.  
It claims the first place in Dietetic Re-  
gimen.

We have now finished the considerati-  
on of the Nutriment. We shall just briefly  
recapitulate what we have said on this  
head in the preceding Lectures.

We began with observing that all our Aliment  
was either of an animal or vegetable nature

We asserted that Man was destined to live upon both. This we proved from the Structure of his Teeth & Instincts. I found it strongly confirmed from the Advantages of a mixed Diet & the Disadvantages of either separately. We in the next place considered Digestion in which we found the Salivæ Liquor Gastricus Bile & Pancreatic Juice were of considerable Service. We then took notice of some Hypotheses concerning this Process & found that some ascribed it to a Solvent whilst others supposed it to be owing entirely to Mechanical Force who considering the stomach as a muscular Organ compounding the force of lesser muscles from thence supposed the force of the stomach to be more than sufficient to grind any aliment received into it Mr Beaumes Experiments showed us that neither of these were entirely right tho' perhaps neither were entirely wrong. We

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We made it appear that Digestion is at least completed in the human Stomach by Fermentation of which there are 3 kinds. viz. Vinous, Aerous & Putrefactive which were prevented from going too far by the Liquors above mentioned but principally by the Bile which we found acted by its bitterness & that this was neither alkaline & not putrescent. We found that Vegetables were nourishing according to the proportion of Sugar & Oil they contained & they are more easy of digestion & less noxious in proportion as these parts are more intimately blended hence Grain in which these are intimately blended is very wholesome while Nuts in which these are not properly united are difficult of Digestion & apt to prove flatulent.

We also observed that a Vegetable Diet is improper for a Person troubled with Flatulencies, Acidity Indigestion & Costiveness arising from this last cause

and such Persons as are troubled with Hysteria & Hypochondriac Diseases; that it produces Heartburn, Colic, Diarrhaea & Cholera Morbus that it <sup>is</sup> very useful wherever there is an Inflammatory or Putrid Diathesis; that in these last Cases Animal Food is highly improper, but that it is useful wherever there is a prevailing Acid. That Animal Food is more soluble than Vegetable & that it is more soluble in proportion to its Alkalinity and less degree of Viscosity. We also found that Meat that is over done is less soluble than that which is rarely done. Tho' some Persons have lately asserted that Meat is more soluble in proportion as it is done. This at least appeared to be the case in the Person on whom Dr. Stephens made his Experiments which are enumerated above.

We also treated of Condiments & found that the Aromata were very improper to accompany Animal Food but were very useful with Vegetables & therefore they grow

in warm Climates; that the Cress kind and  
Alliaria were the best for Animal Food;  
that Salt was the most grateful Condiment;  
that it excited Appetite & when pure resisted  
Putrefaction; that Sugar is Antiseptic  
nourishing & destroying Worms, that Vinegar  
resists Putrescence, corrects the Inflammatory  
Diathesis & assists Digestion.

We also spoke of Drinks & found that  
they were of Use to supply Fluid to the System  
& facilitate Digestion; that when taken in  
moderate Quantities they assisted Digestion  
& assisted Nutrition; but that taken in large  
Quantities they hindered Nutrition.

We also observed that a liveliness of Imagi-  
nation, Delicacy of Feeling, Quickness of Ap-  
prehension, Strength of Judgment &c more re-  
markably accompanied a weak than a Robust  
Habit of Body. Studioius Persons and those  
who prefer the Strength of the Mind to that  
of the Body should live principally upon a  
Vegetable Diet. Thus we have finished the Nutrimenta

# Lecture 8<sup>th</sup>

## The next Class we are to consider are the Astringentia

By this Term we mean such Substances as have a Power of Approximating the Fibres of the Body & increasing their Cohesion. They will exert their Effects not only on the living Body but also after Death. Thus Oakbark which is a very powerful Astringent is employed in tanning to render the Hides of Animals dense, strong & firm. This Property is not peculiar to the Oakbark but is common to all Astringents. The Number of Astringents is very great. They are obtained from the Mineral & Vegetable Kingdoms. They are discoverable by the following Signs. Upon tasting them the parts are very much contracted & corroded, the palate feels a disagreeable Roughness & the Lips become palid. The Vegetable Astringents likewise strike a black Color Ink upon mixed with any Preparations of Iron.

Hoffman

Hoffman speaking of the Use of Astringents says. "If the Administration of any Medicine requires great Caution it is that of Astringents for when given unseasonably they produce the worst of Consequences". Those by the improper Use of Astringents we find Rheumatic Fevers - Cachexies, Adematous Swellings, Colics and Spasmodic Affections of different kinds produced.

Synonymous to Astringentia are the Terms Roborantia, Constringentia, Aretantia Consolidantia Stiptica which regard the Solids. With Regard to the Fluids are the Coagulantia, Condensantia, Incrapsantia &c.

With Regard to the Operation of Astringents some suppose they act wholly on the simple Fibres, which others imagine they act on the Nerves of the Stomach, & by means of them extend their Effects over the System. Those who <sup>favor</sup> suppose the first Opinion suppose the Astringents taken up <sup>with</sup> the Blood & by Means of the Circulation conveyed to the different parts of the Body where it will exert its Effects. But

if we consider that if this was the Case, it would take some Time before the Medicine could produce its Effects in the different parts whereas when Astringents are given internally for checking Hæmorrhages of different parts e g of the Uterus, we find the Effect produced almost as soon as the Medicine is arrived in the Stomach. This single Consideration is sufficient to show us that this Opinion is not well founded. There are however other Arguments which tend to show this. Thus if the Astringent was distributed thro' the whole Mass of Blood a very little of it would arrive at a particular part, therefore to produce any considerable Effects we must give it in large Quantities. We find on the contrary that small Doses will in a short Time produce very considerable Effects - also if some particular Astringents were without undergoing any Change mixed with the Mass of Blood they would cause a Coagulation of the whole

Mass which we know would inevitably occasion the Death of the Animal. From these Arguments we find that Astringents cannot exert their Effects by Means of the Circulation & hence we are led to adopt the other Opinion, vizt that Astringents act solely upon the moving Fibres by Means of the Nerves of the Stomach. It is true Astringents will act on the dead Body but they affect only the Fibres with which they immediately are in Contact whereas in the living Body they extend their Effects over the whole System - this they undoubtedly do by acting on the Nervous System.

Astringents are employed internally & externally to check Haemorrhages. With regard to the internal Exhibitions of Astringents in Haemorrhages it will be necessary to attend to the following Rules. If a Haemorrhage arises from a Suppression of some natural Evacuation even in some unusual Place it ought not to be suppressed until <sup>the natural Evacuation is restored.</sup> Thus if from the suppression of

the Menses an Ulcer is formed in any Part from which Blood issues periodically, it is not to be suppressed till we have brought on a Flow of the Menses. After the Humors have been brought into their proper Channel small Doses of weak Astringents may be given.

Any Hemorrhage becomes Habitual indeed any unusual Hemorrhage whatever ought not suddenly to be suppressed. We should first use bleeding & the Antiphlogistic Regimen in Order to give a new Determination to the Humors, if those fail small Doses of weak Astringents may be applied. In cases of Hemorrhage there is generally a relaxed State of the Intestines producing Costiveness. This is apt to be increased by the Use of Astringents, we should therefore combine gentle Laxatives with our Astringents. Where <sup>any</sup> Hemorrhage is so violent as to threaten the Life of the Patient we should have immediate Recourse to Astringents without having any Attention to the Inconveniences arising from their

their Exhibition. In this Case we should use  
the most powerful Fossil Astringents. If the  
Patient is Pletoric of a strong Robust Habit  
of Body Bleeding will be very necessary as  
Hæmorrhages in such Persons are generally  
attended with Febrile Symptoms - If this is not  
the Case & Hæmorrhage is owing to Relaxation  
as is often the Case after Amputation, Bleeding  
will only increase the Relaxation & will render  
the Hæmorrhage greater. In this Case we should  
trust to Astringents alone. Doctor Monro's  
Observations on this Head are very good. It may  
be of some Service to you to know that recent Hæ-  
morrhages may be suppressed with more safety  
than those which have continued a long Time.  
No Hæmorrhage ought to be entirely suppressed  
until the Cause producing it is removed.

In Hæmoptoe the Use of Astringents is doubt-  
ful. If the Discharge is checked suddenly the Blood  
is accumulated in the Lungs & Suppuration  
& a Phtisis Pulmonalis is often produced -  
Astringents should not be given during the —

Paroxysm but may be employed after it in small Doses. Critical Haemorrhages should not be suddenly stopped unless they threaten the Life of the Patient which is seldom the Case.

Astringents are likewise used externally for the checking of Haemorrhages. Here they may act in two Ways - by contracting the Solids or by coagulating the Fluids with which they immediately come in Contact. They are however of no Service in this Way. If only small Vessels are injured dry Lint & Pressure will more effectually stop Haemorrhages. If a large Vessel is wounded a Ligature will check the Haemorrhage soon & will be safer.

Astringents are also employed in Ulcers. It has commonly been supposed that there were Medicines that will supply Flesh when lost hence called sarcotics. This we now know to have no Foundation. The only Medicine which tend to produce a Cure of

Ulcers are those which conduce to the formation of Pus - Ulcers often heal with Difficulty from the Laxity of the Parts. Astringents by increasing the Strength & Elasticity of the Fibres will tend to bring on that Degree of Inflammation which is necessary for the formation of good Pus.

The Use of Peruvian Bark is too well known to be doubted. It certainly acts by Astringent Qualities & Astringents of other Kinds may have the same Effects. Astringents are also employed in Gangrenes. They not only prevent Putrescence but also cure it after it has taken Place. It has also been proposed to inject Astringents into the Abdomen for the Cure of Droppings. The Water may be all drawn off by the Operation of the Paracentesis & it was thought that Astringents might then be injected into the Abdomen & by strengthening the Parts prevent a Return of the Disorder This Practice is now deservedly rejected. From Dissection it appears that the most frequent

Cause of Dropsies are Obstructions of the Liver & other Viscera & it cannot be cured unless the Obstructions are removed. Astringents would rather tend to increase than remove these Obstructions. If Dropsies were in general owing to <sup>a</sup> Laxity of the whole System which however is not ~~the~~ the case it would be in vain to strengthen the Vessels of any particular part without restoring <sup>Some</sup> to the whole System. Astringents are hurtful in the Hydrops Pectoris & in all encysted Dropsies they may be of Service in Anasarca by strengthening the Relaxed & weakened Habit of Body if Friction & moderate Exercise be at the same Time applied.

Astringents are likewise employed in Diarrheas & Dysenteries. These two Disorders are generally confounded; they are however different tho' it is difficult to distinguish them as there is scarcely one symptom.

Symptom of either which does not at Times accompany  
the other. A Diarrhoea as I told you when speaking of  
Frosts arises from Refrigeration. In it the Stools  
are liquid frequent & of the natural Color. It is also  
accompanied with gripings & Borleomimie. A Dysen-  
tary is occasioned by putrid Exhalations & this is  
perhaps the principal Thing which will enable us  
to discriminate between the two Disorders. In this  
the Stools are frequent but not so copious as in a  
Diarrhoea & are slimy & frothy & accompanied with  
~~Tenesmus~~. A Dysentery according to the best Authors  
is attended with Fever. Astringents should not be  
given in Dysenteries untill the *Prima Via* are  
first evacuated. For this purpose we should employ  
such Substances as have some Degree of Istriction  
Rhubarb & Specacuanha are generally employed.  
After the morbid Matter has been evacuated a  
Discharge is frequently kept up from Laxity.  
In this Case we may safely use Astringents &  
the Peruvian Bark is one of the best we can employ.

Astringents have likewise been recommended  
in Evacuations of Mucus as Gonorrhœa ~~& Fluor~~  
& Fluor Albus. —

In the first Stage of a Gonorrhœa where there is an Ardent Urine, Inflammation of the Urethra & Chordee, Bleeding & the Antiphlogistic Regimen are certainly to be employed, tho' even here some use Injections of Saccus Saturni which as we shall see hereafter is one of the strongest Astringents, but this Practice appears to be highly improper. When the Inflammation is somewhat abated we may use Astringents sparingly; when the Inflammation is quite gone off if the Running still continues we may use Astringents with Safety. It will be best to give them internally & if this is not sufficient they may be employed externally when Balsamices & Demulcents will not effect a Cure.

The Fluor Albus is a Disease which seldom afflicts young Women, but most commonly Women advanced in Life who have born several Children & proves a frequent cause of Barrenness. If it has continued for any Length of Time we must observe the Rule laid down for the Exhibition of Astringents in

Hæmorrhages. We should make ourselves parti-  
cularly acquainted with the Cause of this Disease.  
If the Cause is owing to Tumors & Ulcerations  
of the Uterus Astringents will be highly impro-  
per. In this Case we must employ such Remes-  
ees as have a Tendency to resolve such Tumors.  
Of this the Cicutæ is the principal. This with  
gentle Laxatives will often produce a Cure.  
When the Discharge depends intirely upon  
Laxity & Debility of the Uterus Astringents  
become highly useful.

Astringents are often employed to excite  
Secretions & Evacuations. This may at first  
appear rather unaccountable, but if we con-  
sider that the Suppression of different Evacua-  
tions is often owing to a weakness & Relax-  
ation of the Part we will easily see how As-  
tringents by restoring Strength & Tone to the  
Part will also restore the Evacuation. In this  
Manner Astringents prove serviceable in the  
Chlorosis & Costiveness arising from a weake-  
ness

ned Peristaltic Motion of the Intestines.  
 Astringents are likewise recommended in  
 the Stone or Gravel. They mitigate the pain  
 attending these Complaints & sometimes  
 entirely cure them. We have such well attested  
 Facts in Proof of their Use in these Complaints  
 that we can have no Doubt of it. Van Swieten  
 & De Haen assure us that the Uva Ursi; which  
 we shall find to be one of the strongest Vege-  
 table Astringents mitigates & sometimes  
 cures the Pains arising from the Painstone  
 whilst the Stone itself is not altered either  
 in Size or Shape as appears from the Catheter.  
 Hucker asserts that all the most famous Li-  
 thotriptic Medicines ever in use were either  
 Astringents or acted as such. This we  
 shall consider more fully when we come  
 to treat of the Virtues of Lime Water &  
 the Uva Ursi.

The Use of Astringents in Inflammation  
 is doubtful. The proximate cause of  
 Inflammation is an increased action of  
 the

the Vessels of the Part affected. This may be brought on by various Causes, Thickness & Stagnation of the Blood, which may be brought on by ~~excessive~~ too great Straitness of the Vessels or by a Laxity of the Vessels & external Stimuli where there is too great an action of the Vessels as in the young & strong. Bleeding & the Antiphlogistic Method are most proper. In the old & infirm Inflammation is generally brought on by a laxity of the Vessels. In this case Bleeding is improper & Astringents should be employed. In the young Inflammation generally terminates in Suppuration in the old in Gangrene in both which cases we have seen Astringents employed.

We are now to speak

Of particular Astringents.  
These are either Fossil or Vegetable. The

Fossils are divided into the Earthy, Saline & Metallic. The Earthy are subdivided into Boles, Clays & Absorbent Earths.

Boles are of little consequence in Medicine & might perhaps be entirely rejected, for as they are insoluble in Acids & the fluids of our System no Effects can be expected from them. They have been said to act as Astringents as they contain Iron or Alum but if we want to employ these Substances we should employ such preparations of them as will enable us to ascertain the Dose with more certainty than we can in the Boles. If they exert any Effects in our System, they are I believe bad ones. They have indeed been accused & perhaps with propriety of lodging in the Pores of the Stomach & Intestines & there forming or leaving as a Nucleus for the formation of calculous

concrections. They may be employed externally to dry up offensive serous Discharges by the Skin, but here any dry powder will answer equally well.

Glaeys or Argillaceous Earths are distinguished from Absorbent Earths by their not effervescing with Acids. They are now never employed in Medicine as they have little or no Effects on our System.

Absorbent Earths effervesce with Neutralize Acids of all kinds & for this reason may be employed when there is an acid in the Stomach. They have been used in Diarrhoeas & Dysenteries. When a Diarrhoea arises from a prevailing acid, which is frequently the case in Children it is discovered by the green color in their stools.

Magnesia Chalk Crabs Eyes or any other absorbent Earth by neutralizing the acid may cure the disorder. They do not here

by any means act as Astringents. They are much often given with a view of opening the Bowels. As Dr Ringle has found Alum bent Earths to be septic by destroying the Acid in the Stomach they are highly improper in the Dysentery we however still see them prescribed in this disorder. Thus calcined Harts-horne is added to the Dietarium Album of the Pharmacopeia Pauper of the Edinburgh Infirmary. Chalk has been substituted for the calcined Harts-horne but its effects in this case are certainly pernicious. —

We are next to consider the Saline Earths as Astringents; of these the principal & perhaps the only one. is Alum.

This is formed by the combination of the Vitriolic Acid & a particular kind of Clay. The Alum which we have in our Shops is artificially formed of this clay. Of this we have two Kinds the Roman & the common Alum

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Alum & whatever Diff: there may be with Regard to their use in Dying there is certainly little or none in Medicine When Alum is found natural it is called Alumen Alumosum.

Alum is one of the strongest & at the same time safe Astringents. As it is easily soluble in the fluids of our body its Effects are soon extended over the System. It is of more general use than either the vegetable or metallic Astringents for its operation is much quicker & it acts in smaller Doses than the Vegetable Astringents. And as it has a Sedative Quality combined with its Astringency it may be employed where the Metallic Astringents would by Reason of their Stimulus prove hurtful. Alum has been employed with Advantage in Inflammations of the Eyes more especially when it is owing to Relaxation & Debility as in old People. I have already shewn how Loxity may occasion Inflammation by causing an Accu-

mutation of Blood in the Vessels of the Part.  
When Inflammation is brought on by Toxicity  
general Bleeding is pernicious but if there  
is too great a quantity of blood in the Part  
Topical Bleeding by Cupping or Leeches  
will be necessary to prevent a Rupture  
of the Vessels. The general Method of applying it in this case is to rub a piece  
of it in the white of an Egg untill it becomes hard & then spread it on a Rag.  
Alum is very useful in relaxed Sanguineous  
Gums in the Scurvy mixed with Sage  
Tea & Honey to make a Gargle. It may  
also be used in this way in Anginas  
arising from Relaxation with good Effects.  
Sydenham in this Case recommends the  
Vitriolic Acid but Alum will answer  
as well if not better.

Alum has been applied externally to dry  
up Excretions of the Skin as excessive  
Sweating under the Armpits but as it

is often improper to dry up such Excretions at all it is evident the use of Alum in this Case must be very pernicious & is often attended with imminent danger. Once saw a case where from drying up an evacuation of this kind the Thermours were thrown upon the bowels & a chronic Diarrhae brought on which notwithstanding every method was made use of for its Relief it terminated fatally. In violent Hemorrhages Alum is one of the substances most to be depended upon when given internally. It may also be applied externally. Bleeding at the Nose may be stopped by filling the Nostrils from which the Blood issues completely run so it should put the patient to some pain with a Pin or Doseil dip in the Solution of Alum at the same time applying a Cloth dip in cold Vinegar or Water to the Forehead browns of the head & back of the Neck. These diffuent Applications are you see intended to cause Refiguration or to moderate the

Impetus of the Blood. Alum taken internally acts both as a Sedative &stringent in checking Hemorrhages. Helvetius Preparation of Alum for which he obtained a premium Pension from Louis the 14<sup>th</sup> of France is made as every Dispensatory will inform you by melting Sanguis Draconis over the fire in an Iron Ladle & adding to it as much powdered Alum as it will take up. The Sang. Drac. gives no additional Virtue to the Alum but only serves as a convenient Vehicle to form it into Pills. In the Edinburgh Pharmacopœia. Fer Japon. is substituted for the Sang. Drac. to little Effect as the Alum can receive no additional Virtues from it. The best Method that which I invariably follow is to form it into Boluses with Cons. Ros. from 5 to 10 Drun. Grav in a bolus to be repeated every hour or half hour if necessary.

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necessary. Dr. D. Thompson in the Medical  
Express tells us that in violent Hamorrhage  
of the Uterus he has given 3 ss graque  
hora. Few Stomachs however can bear such  
Doses without Nausea even Vomiting &  
as we should endeavor only to moderate  
not to stop too suddenly Hamorrhages  
small doses frequently repeated should be  
preferred. As Nausea is so apt to attend the  
use of Alum that it often renders the ex-  
hibition of it very difficult. Dr. Malorina af-  
firms us that if we combine a little Cinabar  
with the Alum it will prevent the Nausea  
However this be there is no doubt but  
Heterotius's Method which I generally  
prefer is very rational viz. to add Opi-  
um to Alum. This will prevent the  
Nausea & give the Alum time to exert  
its Astringent Effects. Dr. Grashuys affirms  
us that Alum is of service in the Colica  
Pictorum. Dr. Thompson recommends it

in the Fluid Albus. Dr Cullen advises it to be employed in Diarrhaeas & Dysenteries where he thinks it will act not only by its Astringent but also by its Antiseptic Qualities. It is also said to be serviceable in Intermittent Fevers when combined with Aromaticks & taken just before the fit comes on. It is also recommended in continued Fevers. With regard to its use in these Disorders I can say nothing as I never have had Occasion to make Trial of it in those cases. I am not forward in making Experiments upon my patients tho' if the Medicines usually found to succeed in these Cases should fail I should have no Objection to trying the Alum but with this I should feel very uneasy whilst my Patient was under the Operation of a Doubtful Remedy.

# Lecture 9.

We are in the next place to enter upon the consideration of Metallic Astringents. The first of these is Copper.

This is a Metal soluble in our fluids & in all Saline Substances. It may be combined with Acids, Alkalies & Neutral Salts. If there is any difference in the preparations those with Alkalies are the most stimulating with Neutral Salts the mildest & that with muriatic Acid the most powerful Astringent. Copper is a very powerful stimulant & excites Vomiting when taken even in very small Doses. As the combinations with the Neutral Salts are the mildest we should always prefer them.

Copper has been used with very good Success in Dropsies in which case by its Stimulus it proves a Diuretic & Purgative at the same Time by its Astringency it gives Tone to the System. It is employed in Hemorrhages but in this Case it is inferior to Alum

or the Preparations of Lead. The Roman Vitriol is employed externally to check Hemorrhages which it does not only by contracting the Solids but also by coagulating the fluids with which it immediately comes in contact Boyle in Cases of Hemorrhage recommends the Oss Veneris but since his Time Physicians have employed more Time in disputing concerning the preparation of this Medicine than in making Trials of its Efficacy. Some have asserted that it is a preparation of Iron. Boyle himself tells us it is a preparation of Copper indeed no Preparation of Iron can produce the same Effects with the Oss Veneris. There are directions for obtaining it in crystals in Tom. 1. Art. Nat. Caducos: It is in short this. We dissolve any quantity of Roman Vitriol in Distilled or Rain Water then filter the Solution & to this filtered Solution add Spt. Sal: Ammon: Vol: until nothing more will precipitate

pitale, we then pour on highly rectified Spirit  
Vinegar to separate the water which is to be pou-  
red off. Elegant small Sapphire colored crys-  
tals will be found which are to be kept  
after being sufficiently dried in a bottle  
well secured from the Air. In this we have  
all the Advantages & never any Mercurial  
Arid combined with the Balsam. This is  
a very powerful Astringent & Antispasmo-  
dic & takes off the Mobility of the Nervous  
System. Since it is of Service in Cases of  
unusual Laxity e<sup>g</sup> the Rickets as Mr.  
Boyle observes. It has been used with  
Success in the Mania & Epilepsy. As an  
Instance. A Man afflicted with a real Epi-  
lepsy was perfectly cured of his complaint  
by this Medicine in the Royal Infirmary  
at Edinburgh. It may be given in those  
Cases from 30j to 60j made into Bo-  
lus with Cons: Colar. It is best to begin  
with small Doses & increase it gradually.

Dr Cullen gives this Medicine likewise called  
Cuprum Ann. the preference to all those  
Medicines that have been recommended in  
the Epilepsy. Boyle recommends his Osmosis  
as an Anodyne & says that it acts with-  
out the inflammatory qualities & Residues  
of Opium. If we consider the properties of  
Copper we will find it difficult to admit  
to this Assertion & Experience does not con-  
firm it. We may here observe what fal-  
lacies even of that Men are liable to fall  
into. The Osmosis in some particular  
causes by acting as an Antispasmodic  
might prove anodyne but on this acc't  
to prefer it to Opium would be highly  
absurd. Boyle likewise recommends it  
in Petechial Fevers accompanied with  
subcutaneous Tendinum & says it is particu-  
larly useful in taking off the Nervous  
symptoms. In this case also its effects  
are doubtful & I would never employ  
it unless the Medicines generally found

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to succeed in these Diseases should fail & then  
then I would employ it with Reluctance.

All the preparations of copper applied  
to worms out of the body instantly destroy  
them & there is no doubt but they would pro-  
duce the same Effects within the body if  
they could be retained in sufficient Quanti-  
ties on the Stomach. A single drop of a So-  
lution of Copper in the Vol. Alk. vomited  
a child to whom it was given. The copper  
Amor. is more likely to succeed than any  
other Preparation. The Roman Vitriol has  
of late been employed in the London  
Hospitals for the Cure of Intermittents  
& frequently with good Success. The Dose is  
from 3s to 6s.

Copper is employed in Germany to prevent the  
Hydrophobia consequent upon the bite of a  
mad dog. The Dose is 3s of copper filings threw-  
en upon buttered bread. An experienced  
Physician of Copenhagen assured me that he

had given it frequently to persons who told  
him they had been bit by mad Dogs. I should  
not have mentioned this did I not find  
that Dr

President of the Society of  
Berlin mentions it & tells us that he had  
tried & that it never failed of success.  
There is no reason to doubt of this Gentle-  
man's candor or veracity but whether  
the Dog was really mad ought to be inquis-  
ited. Persons who are bit by a Dog being  
apprehensive that he is mad make use of  
any Medicine recommended to prevent  
the Hydrophobia & when this does not  
appear they ascribe it to the Efficacy  
of the Medicine when afterwards it  
appears that the Dog tho' vicious was  
not mad. It appears to be this that deceived  
Dr. Meade with regard to his Powder which it  
is probable never produced any good Effects in  
a single Case of the Hydrophobia from real Canine  
Madness. This Disease is of a Spasmodic Nature  
& is often attended with violent Convulsions. I had  
an

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an Opportunity of observing this and the Progress of  
of the Disease in a Child of 8 Years of Age in the Edin-  
burgh Infirmary who notwithstanding every Thing  
was attempted for her Relief died in a short Time.  
Possibly Copper which is violently Astringent & Anti-  
spasmodic may prevent the Hydrophobia from coming  
on.

Copper is employed in external Applications to  
Ulcers as a Digestive & escharotic. By stimulating  
the Vessels it may produce that Inflammation which  
is necessary ~~taking~~ the Formation of good Pus. The  
Antients frequently employed it in both these situa-  
tions. Mercury is now more generally employed but  
there are Cases where the Copper is preferable —  
D<sup>r</sup>. Cullen gives you an ~~ancient~~ Account of a Disease —  
which appeared a great many Years ago in Scotland  
with Ulcerations of the Mouth & Fauces with Ulcers  
on the Tongue, about the Anus & in different Parts  
of the Body resembling the Venereal Disease but dis-  
tinguished from it by the different Sloughs of the  
Ulcers, their pinnated Appearance, want of Excre-  
tion from Carnal Communication &c. Mercury in  
this Case was tried with no Success, but Copper al-

most always effected a Cure. A Solution of Verd<sup>e</sup>,  
grease applied to the Tongue very easily effected  
a Cure there, by inducing a good suppuration  
but is more difficultly applicable to the Tonsils  
also less quick in producing a Cure. This Disease  
appears to resemble very much a Disorder in the  
Southern Parts of the Continent called the Yaws  
which we are also informed sometimes will not  
yield to Mercury. From this whenever we have  
a difficult Ulcer under our Care we should never  
despair of a Cure until we have tried the Effects  
of Copper. For the Purposes of Escharotics the  
best Preparations of Copper are Mel & Unguent:  
Egypt: I would here advise you never to be too  
free with Escharotics at all for by the frequent  
Use of them for the Removal of Fungous Flesh  
a good Wound is often converted into an illcon-  
ditioned Ulcer. A Surgeon of great Experience  
informed me that he very seldom made Use  
of Escharotics & when he did use them he never  
applied them to the Body of the Wound but only

to the Edges. When they are absolutely necessary we may apply a little of the Mel Egypt: to the Ulcer. The Escharotics most in Use are the Roman Vitriol - burnt Alum red & white Precipitates. But as to the Dose of Copper taken internally no certain Rules can be laid down, for one person may take a certain Dose without much Nausea when at the same Time half the Quantity will vomit another. The best Method is to begin with small Doses & to increase them gradually as Occasion may require.

The next Metallic Astringent we shall treat of is

### Iron.

This is a Metal of more general Use than any other. It may be combined with most Saline Substances & is soluble in all the Acids. The Vegetable Acid only corrodes it but extracts all its Virtues. It may be given in Substance, as the Acid of the prima Via will corrode it, but this is always an uncertain Method as it depends upon the Acid in the Stomach & if the Iron does not meet with this it will produce disagreeable Effects - merely from its Weight & Mechanical Motion

we ought therefore to use some Preparation  
& it is of no great Consequence which we  
employ as they all possess similar Virtues.  
When we want it in a Powder Form Lemery's  
Method is the best viz. to let Water digest  
about an Inch deep upon Iron Filings by  
which means part will be converted into a  
fine black Powder which may be separated  
from the corroded Filings by shaking the  
Vessel. Iron combined with Acid of Sea Salt  
gives us the Martis of the Shops. This will  
readily combine with highly rectified Spirit.  
Vinegar form a Kind of Dulcified Spt. Salic.  
of a very agreeable Flavor. Iron is purely  
Astringent without the stimulating Qualities  
of the Copper or the Sedative & deleterious  
Qualities of Lead but it is neither so power-  
fully Astringent as the one nor so much of  
an Antispasmodic as the other. From its  
Astringency Iron is indicated in all Cases  
of Laxity & Debility & in Obstructions proceed-  
ing from the same Cause. Iron is likewise  
employed

employed as an Antispasmodic taking off the Mobility & Irritability of the Moving Fibres. It is on this Account indicated in the Hysterics where it is not to be given during the Paroxysm but is to be employed after it to prevent its Return. It often proves a Cure in this Disorder & it is probable it would prove so often were not this Disease frequently accompanied with Obstructions of the Viscera. On this Account I generally combine Chalybs Ppt. with Magn. Chalk or some other absorbent & obtain great Advantages from this Combination than when the Steel is employed alone. The absorbent forms a Neutral Salt with the Acid in the Stomach which proves a gentle Laxative & prevents the Costiveness which would otherwise take Place. This Combination produces better Effects than any other Preparation except the Mineral Waters which often produce Effects not to be imitated by any Preparations in the Shops. This is undoubtedly owing to the smallness of the Doses as they contain nothing but Iron and

The strongly impregnated Waters seldom answers so well as the weak ones. Iron is sometimes combined with Bitters & Aromatics & in this Way may be given to Advantage in a very relaxed State of the Stomach. Whenever we must continue the Use of Iron for a long Time the most agreeable Method of taking it, is to quench a red hot Iron in Cyder or Wine & make use of it for common Drink. Iron has been recommended in the Hypochondriac Disease but as this Disease is commonly attended with Rigidity the Use of Iron is certainly improper. It seems to have been given on Account of the Similarity which was supposed to take place between the Hysteric & Hypochondriac Diseases - We now know them to be entirely distinct. Dr. Cullen gives the History of each Disease and points out their Difference very properly. The Hysteric Disease is accompanied with the Laxity of the Solids, Flatulencies, a disordered State of the Bowells & frequently with loose

Stools. It generally attacks Women, is purely Spasmodic, is in general incidental & is relieved by cold Weather, hence it is not so frequent in the Northern as in the Southern Climates. The Hypochondriae Disease is accompanied with Rigidity of the Solids, Costiveness & sometimes Spasms in the Abdomen but is seldom purely Spasmodic. It generally attacks People of a Melancholic Temperament & in the Decline of Life, is commonly habitual & is not so frequent in the Southern as in the Northern Climates. They are sometimes both combined in the same Persons.

Iron has been employed for the cure of Intermittents particularly by Dr. Stahl & his Followers. They laying it down as a Maxim, that a Fever was an Effort of Nature to throw off some Morbid Matter from the Body thought it improper to disturb her in her Operations & therefore employed the Peruvian Bark itself. Iron is employed with Advantage in Chlorosis & suppression of Menses owing to this Cause I say owing to this Cause, because suppression of Menses is not

always owing to this Cause i.e. Relaxation but is oftentimes occasioned by Rigidity and Spasms of the Uterus in which Cases Iron proves hurtful.

The Use of Iron is improper in all Inflammatory Diseases & in Haemoptoe & other Haemorrhages attended with Inflammatory Symptoms. It is improper in all Obstructions of the Viscera & wherever there is a Disposition to Putrefaction. It ought likewise to be avoided in Consumptive & Pethoric Habits. In Biliary Diseases we ought not to use it except in small Doses. In Ulcers of the Lungs & other Viscera it is not to be given unless very diluted. In these Cases the Mineral Waters will answer better than any other Preparation. If our Patient cannot have the Advantage of these we may make an Artificial Mineral Water by dissolving of Water. The Use of this should be accompanied with a proper Degree of Exercise.

Iron is possessed of a Considerable Vermifuge

Vermifuge Quality. Chalybs. Ppt. has been com-  
monly made use of in this Intention. I have  
frequently used it with Success. I now however  
generally use the Sal Martis & think it much  
preferable to the prepared Steel or any other  
Preparation. It not only destroys the Worms  
present but by giving Tonic to the Intestines, pre-  
vents their future Generation for when we come  
to treat of Anthelmintics we shall find that  
a relaxed State of the Intestines is the most  
frequent Cause of Worms. I generally give it  
from G. ij to G. v at a Dose mixed with a little  
Molasses or Syrup not only to conceal the Taste  
but also ~~&~~ because all sweet have the Power of  
destroying Worms.

I have found Sal Martis to be a very useful  
Remedy in Relaxations of the Stomach producing  
Indigestions, Flatulencies & frequent Returns  
of a Violent Colic. In these Cases I generally  
give in Doses of G. ij made into Pills with Castile  
Soap & occasionally a little Rhubarb added to

2 & 2

prevent Costiveness.

Sal Martis & all the other Preparations  
of Iron give a dark or even black Color to  
the Alvine Fæces.—

## Lecture 10th.

The next Metallic Astringent we shall treat of  
~~is~~ Lead.

This is only used in Medicine when combined with some other Substance. The Calx of Lead with Oil forms the Empl. Comm. which is the Basis of most other Plasters. This Lead answers no other Purpose than giving proper Consistence. Lead is active only when combined with any of the Acids, but in ~~general~~ Medicine we generally employ the Composition of it with the Vegetable Acid. This gives us the Acetum Litharg: of Gouland a famous Surgeon at Montpellier in France which is the Basis of the Boggis that go under his Name. The Acetum Litharg: is prepared in the following Manner - We take as many pounds of the Calx of Lead e. g. Litharge as Points of Vinegar & boil them over the Fire after they have boiled some Time we pour off the Liquor and keep it for Use. 3 ss of this Extr. Saturate as Mr. Gouland calls it is to be added to a pound

of melted Wax when these are fully incorporated we dip a Piece of Linnen cut in the Shape of a Tongue into the Composition & when they are cold we roll them up in the form of a Bougee these will answer very well in the Cruckles or Excrescences of the Urethra which are not of long standing. When they have remained a long Time accompanied with Fistula we must make our Bougees stronger. We then take 3 ijs or 3 ij Coctr. Sat. to 3 vij Cer. & dip the former Bougees into the Composition. Bougees composed of nothing but Wax, Deer's fat & Oil have been found serviceable when the Urethra was so sensible as not to bear any other Bougees. Some add Mercury to their Bougees but those above described will answer every Purpose of a Bougee. The Linnen that is employed in making Bougees should be fine Holland that has been worn by which it is rendered soft cut in a Lingiforme Shape. The Composition should be neither too hot nor too cold & we should be

be careful to suffer no Air Bubbles to remain in the Linnen which would render the Bougee unequal. Bougees are used when there are Ex-  
crescences in the Urethra with or without a Gleet. We know that these Excrencies are in the Urethra when the Urine will not pass in a continued Stream but oftentimes comes off by Drops & sometimes by two Streames with Pain. They are likewise employed in Gleets of long standing. They are generally introduced at Night & suffered to remain in till Morning. They frequently produce Pain with some <sup>degree of</sup> Inflammation & of Consequence Suppuration. They destroy Caruncles by inducing a Suppuration in them. They cure Gleets by produc-  
ing a Construction in the Glands of the Urethra a Relaxation of which is nece Knots sufficient to keep up this Discharge.

Lead besides its stringent is possessed of ~~several~~ considerable Sedative Virtues. It should al-  
ways be used with the utmost Caution for when continued for any Length of Time it is apt to produce Paralytic Affections of different parts

particularly of the Extremities. The Acetum Lethargi is employed for various external Applications. It is generally employed considerably diluted. A Spoonful of it with two Spoonfulls of Brandy is added to a Bottle of Water. This Combination is well known under the Name of Ag: Veg: Min: This is employed with Advantage in inflamed Eyes. Gutt: is instilled into the Eyes at a Time & is repeated bis vel ter Die or else a Compress moistened with it is kept applied to the Eyes. It is likewise said to be useful in pain of the Ears when Deafness is apprehended a Tea Spoonful is poured first into one Ear & 5 or 6 Minutes after into the other. A Compress moistened with it is very serviceable in Scalds & Burns & other Cases of this Nature. It is also employed in Cases of partial Erysipelas but if it does not produce speedy Relief here the Use of it should not be persisted in lest the Part should become Gangrenous. It is recommended in Fistulous Ulcers. In Sprains a

Compress moistened with it produces very good Effects. It generally takes off the pain & swelling which commonly attend these Cases. M<sup>r</sup>. Gouland recommends a Poultice of Bread with Acetum Litharg: in the Paronichia. This Disease commonly called a Felon generally affects the Joints of the Fingers & tormenting the Patient with a most acute Pain for two or three Days, until some Degree of Suppuration takes place an illconditioned Ulcer is formed & the Disorder generally terminates in the loss of the Joint. If this Application is found to upon Tryal to possess all the Virtues that M<sup>r</sup>. Gouland ascribes to it we may consider it as a valuable Improvement for no Medicine hitherto known has been found serviceable in this Disorder. It should be used in the Beginning. This I mention that in Case you should employ it you may not attribute Failure to the Inefficacy of the Medicine when it is perhaps owing to the Disorder being too far advanced. It is likewise employed likewise in the Piles & in the Hernia Scrotalis and

even in a strangulated Hernia. In this last Case it should be used cold. It is likewise employed in Scrophulous Indications of the Glands with Success.

Saccharum Saturni which is the Action Letharg: in the form of Chrystals is recommended by Dr Boerhaave in Foulness & Eruptions of the Skin in partial Inflammations as a Refrigerant & as a Cosmetic. It figures one of the best practical Writers on the Diseases of the Eyes recommends it in Ophthalmia. It is employed in Scalds & Burns. W<sup>m</sup> Bell of Edinburgh recommends a Solution of Sack: Sat: in Water to the Extract: as we can be more certain of the exact Strength of the former than of the latter & the latter is apt to let fall a Sediment which the former will not if a little Vinegar be added - Boerhaave Boister & others recommend Sack: Sat: in Scirrus to prevent its becoming Cancerous. A Scirrus is a hard & indolent Tumor which will often remain

remain a long time without giving the Patient any Inconveniencie but if it is injured or any Stimulus is applied acute Pains are felt, it ulcerates & becomes a Cancer. Lead by its Sedative Qualities rendering the Parts less sensible may prevent this Effect from taking Place. Perhaps to this may be owing the Success of old Family Receipts in this Case into the Composition of which Lead generally enters. In this Case I would prefer the strong Vinegar of Lead without any Spirit. It may be employed in Form of a Poultice with Bread or may be mixed with Flour to a proper Consistency & then spread upon a Rag & applied over the Part. I consider the Introduction of Lead Water into general Use as a very considerable Improvement but like all other efficacious Medicines when employed improperly it may produce bad Effects. Lead used inadvertently produces often times Paralytic Affections in different Parts. It is hurtful in Eruptions of the Skin owing to Relaxation. When it is employed for too long a

Time in Erysipelas it may produce Mortification. Mercury & Lead are sometimes employed in Medicine combined under the Name of Trochifeci Minio. These have been used with Success in Scrophulous Ulcers. They are to be used only when the Ulcers are few, for if they are numerous & the Medicine is administered too freely its Exhibition may be attended with disagreeable Effects.

Sach: Saturni is employed internally in Haemorrhages where it acts in both as a Sedative & Astringent. It is likewise employed in Diarrhoeas Dysenteries Fluor Albus & Gleet. For a few Doses it may perhaps be given without bad Effects but it should not be continued long as disagreeable Consequences certainly follow. Sach: Sat: & Antiphthisia into which that certainly enters have been used with Success in Continued Fevers & proved very serviceable in taking off the Nervous Symptoms. Mr John Hunter recommends Sach: Saturni in the Tetanus. I have myself tried it in this Complaint nor do I know that

it has ever been tried here. White lead is em-  
ployed externally in the form of an Ointment  
in the cure of Burns. It ought not to be  
used long for it induces such a degree of flac-  
cidity as renders the parts very difficult to heal.  
White lead is also used by the Ladies as a Cosme-  
tic to produce a fair hand & Skin & to take  
off those Freckles & Spots with which they are  
sometimes troubled. They however pay dearly  
for this shortlived beauty. The Skin becomes  
dry & shrivelled & a disagreeable Sallowness  
with Pimples takes place which remains dur-  
ing life. Lead has been accused of produc-  
ing the Colica Pictonum & Palpices of diffe-  
rent Kinds. The Colica Pictonum is distingui-  
shed from all other Species of Colic by its fre-  
quently terminating in palpices of the lower Ex-  
ternities. The History of the Disease will  
however better enable us to know this Com-  
plaint. The patient sometimes suddenly feels  
a twisting pain in the Abdomen but in gen-  
eral this is preceded by the following symp-

loms. There is a Weight & Oppression in the Region of the Stomach - a Nausea & Aversion from Food. Heaviness of Mind Languor of Body, Dimness of Sight & a palleness of the Countenance - a Pain in the Abdomen generally situated about the Navel with a sensation as if the parts were twisting or as if something were boing ~~in~~ it. The Epigastrium sometimes feels hard to the touch but not always & is generally retracted towards the Spine with great pain. The pain sometimes remits for a short time but returns again with increased Violence forcing cold Sweats. From the Violence of Pain the patient is entirely deprived of Sleep. There is little or no Evacuation by Stool; when any faeces are voided they are hard round & scarcely larger than Sheep's Dyng. The Anus is very much constricted & it is sometimes almost impossible to force a Passage. It appears also to be drawn upwards. The same constriction takes place

place in the urinary passages. There is a great  
Sickness at the Stomach Nausea & sometimes  
a Vomiting which somewhat relieves the Pa-  
tient for a short time. In the Beginning of  
the Disorder there is no fever as it advances the  
Pulse becomes frequent small weak & contrac-  
ted. The Thirst is not very great. The Disor-  
der generally continues in this way for 12 or  
14 Days about which time a slight pain is  
felt about ~~which~~ <sup>near</sup> the Spine of  
the Scapula which at last becomes fixed  
& causes a weakness of the Arms. This weak-  
ness gradually increases untill it is chan-  
ged into a paralytic affection of the upper  
Extremities. The feeling is much impeded  
tho' seldom entirely destroyed. Sometimes  
both upper & lower extremities are affected  
but this is seldom the Case the upper  
ones alone being most generally affected  
From the Time the extremities are Para-  
lytic the pain in the Abdomen entirely  
ceases. The most common Cause of this

Disorder is the Poison of the Lead introduced into the Body. Hence we find that those employed in Minds in digging of Lead & those especially em-  
ployed in smelting Lead & exposed to the Vapor of it are very often afflicted with the Colic. Potters who make use of Lead in glazing their Earthen Ware & are exposed to its Vapo<sup>r</sup> are so subject to this Disease that from them it has been called Colica Figulorum. Painters who use White Lead in their Art also are very subject to this Disease & from them it has been called Colica Pictorum. It is often found to be brought on by Sophisticated Wines. Some Vintners when their wines become pricked or tend to Acidity mix with them a Quantity of Litharge or Sugar of Lead which sufficiently obviates this Tendency. Dr Franklin who has written an excellent Treatise on this Subject shows that in those Cities where Houses are covered with Lead or when the Water that is used for drink or Cooking is preserved in leaden Cis-  
ters, the Inhabitants are very subject to the Colica Pictorum. He gives us an Instance in

Amsterdam. The Houses of this City were formerly covered with Tiles, but when it increased in Riches were covered with Lead. The leaves of the Trees which make Amsterdam look almost like a Forrest being carried by the Winds on the Tops of the Houses they undergo a Fermentation and corrode the Lead. When it rains this part is carried down into the Cisterns with the Water which the Inhabitants use with their daily Food & since the Houses have been covered with Lead the Colica Pietonum has been very frequent in that City, whereas formerly it was scarcely ever heard of. This Colic is very common in those Counties in England where great Quantities of Cyder are made & it has commonly been ascribed to the fermenting Juice of the Apple. Doctor Akenhead has shown that it is not owing to the Cyder but to the Lead contained in the Cyder. He observes that in the Cyder Presses they <sup>mostly</sup> make use of Leaden pipes. If the Disorder was owing to the Cyder alone we should be as much subject to it in this Country or even more so, where Fermentation

is carried on more vigorously from the Heat  
of the Climate, than the Inhabitants of  
great Britain. But we find this <sup>is</sup> not the  
Case - Our Presses have no Lead about them  
we employ nothing but Wood or Iron.

As for the Cure of this Disease it would  
~~it would~~ be only taking up your Time to say any  
Thing upon it as it has been treated in so masterly  
a Manner by many able Writers. You may consult  
Akenside De Haen, Huacham, Hilary Tissot  
Tronchin, Cullen & many others. I shall only men-  
tion one Fact which I met with in Dr Hagen's Ratio  
Medendi. Hungary is a Country rich in Mines but  
poor in Inhabitants. Numbers that work in the  
Lead Mines are carried off yearly by the Colica  
Pectorum. Dr De Haen observed that the Miners  
in one particular Place were remarkably free from  
it. This they ascribed to the Advice of a certain  
itinerant Quack which was to give the Men  
every Morning before they went to Work a Piece  
of Brown Bread spread with Hogs Fat. Since  
they had pursued this Method which was about  
three Years they had scarcely ever been troubled  
with

with the Colic, tho' before this Time it had been very frequent amongst them. This was confirmed to them by a Physician who had attended the People 12 Years. There is no doubt but a Breakfast of this Kind which being difficult of Digestion remaining long on the Stomach would most effectually tend to sheath & obtund the Acrimony of the Lead. A Dinner of fat Broths would still further tend to produce this Effect. From this Fact we learn that Oil taken by the Mouth & thrown in by Glysters would be of great Service in this Disorder. We also learn that the best Preservation for those who are exposed to Lead as Painters, is, to live principally upon fat Meats & to use large Quantities of Butter or Oil.

### Zinc.

This has been used in various external Applications. Van Swieten recommends a Solution of the Flowers of Zinc in Water as an Astringent in weakness of the Eyes. This Solution is also recommended when the Skin has been hurt by Friction as in riding. In most Chronic

Diseases the Skin is apt to break in different Places. This we may generally foretell by red Spots appearing at the Skin. If these parts are bathed with a Solution of Flo: Zinci the Skin will generally be prevented from breaking. Children or fat People are apt to chafe or have their Skin sore in different Places. These may be prevented or when it has taken Place be remedied by Means of the same Solution Lap: Calion: & Putty are sometimes employed to give a proper Consistency in some Plasters & Pintments. They possess no Virtues for they will yield no Impregnation to Water & have no Virtues when combined with Vinegar. White Vitriol is a Combination of Zinc with the Vitriolallied. It is employed externally in Hæmorrhages. It is likewise used with good Success in Inflammations of the Eyes. We may likewise employ an Injection of it in a <sup>no</sup> Goutcha when the Inflammation is gone with Advantage. It is said to be a powerful Emetic & is recommended where Poison has

been swallowed - The Dose is 3 ss.

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The Flowers of Zinc have been lately introduced into Medicine with many Testimonies, they were not advised internally by any one except Glauber till Dr. Gaubius discovered them to be the Remedy employed by the famous Empyrie Luddemannus under the Title of Luna Fixata After this he exhibited them with Success in the Cure of convulsive & spasmodic Diseases. Dr. Hart gives an Account of their Use in an Inaugural Dissertation which he published upon taking his Doctors Degree at Leyden. The first Case Dr. Hart relates was that a Girl of 17 Years of Age who from a Fright was seized with Convulsive & Spasmodic Affections which were succeeded by Tremors of her whole Body particularly the inferior Extremities. This Disease our Author observes might justly be termed a Slight Chorea Sancti Viti On the 6<sup>th</sup>. day after the Attack of this Complaint she was put on the Flowers of Zinc four Grains of which were divided into Six Powders - 3 of which

to be taken every Day. From their Use the Symptoms were considerably diminished without any Uneasiness being produced. This Success encouraged Dr Van Doeverten who treated the Case to increase the Dose to 3 ij Saech. therefore finely powdered he added Grx ij Flor. Zinci divided into as many Powders 3 taken every Day & by the Time they were finished her Complaints were intirely gone: Some Months after this Patient from a sudden Fright was again seized with her former Complaints, but upon taking G. xij Flor. Zinci divided into ten Powders they were perfectly removed.

The two next Cases ~~by Dr.~~ fell under the Notice of Dr. Gaubius. The first is the case of a Boy of 14 Years of Age who labored under a real Epilepsy suspected to be hereditary as his Grand Father was much afflicted with that Disease & three Children of the same Family had died of it. After many other Remedies had been tried in Vain, Dr. Gaubius ordered him

the

the Flowers of Zinc - these he took to the quantity of one grain twice a day & from the use of them was perfectly cured.

The second Case by Dr. Gaubius is that of a Man about 50 Years of Age who from a high Degree of Vexation was thrown into such violent Convulsions as to be threatened with immediate Suffocation. Upon a Vein being opened & other Remedies administered the Fit at that Time went off but in about two Weeks after it returned with as great Violence as before & attacked him even twice in one Night. To this Patient the Flowers of Zinc was given every two Hours. After this he had no Return of the Fits.

Dr. Gaubius observes he has used the Flower of Zinc in Case of Chincough & Hysterick Hic-cough & of the Spasmus Cynicus. He adds that they frequently did more than any other Medicine but that they were by no Measrs successful in every Case.

This Account excited the Physicians at Edinburgh & the other parts of Scotland to

make Experiments with the Flowers of Zinc  
Mr. Bell Surgeon at Edinburgh has publickly  
shed the Case of a Man who had been afflic-  
ted with the Epilepsy for 10 Years & by it  
was deprived of both his Memory & Judge-  
ment but was intirely relieved by the Flowers  
of Zinc. By the latest Account it appears  
that the Flowers of Zinc are still used and  
with the same good Effects as formerly.  
In a late Volume of the Medical Commenta-  
ries we have an Account of an obstinate Con-  
vulsive Cough which gave way to a few Doses  
of the Flor. Zinc. After resisting many  
other Remedies as also a violent Hierano-  
sin that had proved very refractory & with-  
stood all the Class of Nervous Medicines  
as Musk. Castor, Opium, Camphor Bark  
Valerian & warm & cold Bathing. Blisters  
afforded only a temporary Relief. It was at  
length perfectly cured by the Flowers of  
Zinc to the Quantity of Nine Grains in a Dose.  
I have my self tried in a Variety of Cases

& with Regret I add that my Endeavours were  
fruitless in every Case but one that of a young  
Woman in the Pennsylvania Hospital afflicted  
with severe Hysterical Paroxysms who was cured  
in a few Weeks by the Use of it. In every Case  
where I have exhibited it for two or three Weeks  
some Relief was obtained.

Epilepsy is owing to ~~such~~<sup>so great</sup> a Variety of  
Causes, that it is impossible any one Medicine  
can be adapted to every Species.

The Cause of this Disorder is often lodged  
in the Head & Brain & in this Case it is very  
obscure & even without the Reach of Medicine  
When the Cause is seated in the Head it may be  
owing -

1<sup>st</sup> To a wrong Conformation of the Brain in its  
original Formation

2<sup>d</sup> To Tumors in the Cranium. I once saw a Case  
of this kind which appeared upon Dissection. There  
no Medicine could possibly be of any Service.

3<sup>rd</sup> It may be owing to Extravasation of Blood in  
the Brain - That Convulsions are frequently

excited by Contusions & Fractures. Few Apoplexies terminate without Convulsions which are excited by Nature to throw off the offending Cause.

4<sup>th</sup> Extravasation of Serum in the Ventricles this is generally attended with Convulsions & here Zinc is of no Service.

Epilepsy may be owing to an Obliteration of the Coats of the Arteries & Veins of the Brain - In four Cases out of five the Causes of Epilepsy remain concealed from us & if we were acquainted with these Causes it would nevertheless in many Cases remain incurable.

The Cause of Epilepsy is sometimes seated without the Head. I do not mean the Occasional Application of Stimuli but some permanent Cause existing in the Stomach & Bowels. It is sometimes Idiopathic. Under this Head may be ranked a too great Sensibility & Irritability of the System in

in general or of some part in particular as the Stomach & Bowels. This Sensibility & Irritability may exist without producing Epilepsy - It requires some occasional or exciting cause to bring it on such Persons.

Epilepsy generally makes its Appearance before the Age of Puberty & is most frequently brought on by Agitation of the Mind. Three Times out of Four it is first occasioned by violent & sudden Terror unless where it is generated in the Womb of the Mother. I know several Mothers subject to Hysteria whose Children are thrown into Convulsions upon the Application of any violent Cause or even a slight one long continued & some of these Children remain subject to this Disorder. This is a strong Confirmation of my Opinion that Epilepsy may be owing to too great Sensibility & Irritability. This Disorder disappears about the Age of Puberty when the Body has arrived at its full Growth. If it attacks Children in their early Infancy & they are not relieved from it at the Age of Puberty

or when the Body has attained its growth  
they will continue subject to them during  
the Rest of their Lives. This kind of the Dis-  
order where the Cause is seated without  
the Head is the only one in which Relief  
is to be obtained from Medicine. For this  
Purpose many Substances have been recom-  
mended ad Specifis but they have been  
always laid aside because they often fail  
less than succeed. This is a bad Reason  
because no Medicine is suited to every species.  
Zinc is a gentle Astringent & perhaps to  
this Quality all its Effects are to be attributed  
Astringents have at all Times been used  
in this Disorder but only in weak & gentle  
Doses. When we wish to alter the natural  
Constitution by gradual & slow Means they  
seem very proper. This Viscus Quernus which  
is a gentle Astringent has often relieved this  
Disorder. Whether I am right or wrong it  
cannot invalidate the Usefulness of Flowers

of Zinc which must be considered as a valuable Acquisition to Medicine.

The Flowers of Zinc are obtained either by sublimation or Precipitation. For the Pro-  
cess to obtain them I refer you to Books of  
Chemistry & Pharmacy. The Method gene-  
rally used in this City is to add to a filtered  
Solution of Salt of Tartar - the Alkali attracts  
the Acid & the Metallic part is precipitated  
in the form of a White Powder which dried  
gives us the Flowers of Zinc. The Dose is  
from 3, 4, 6, to 12 gr.<sup>m</sup>. White Vitriol has been  
used for the same Purpose & with the same  
Success.

In our next Gentlemen we shall  
treat of Water

## Lecture 11th Water.

Water is an ~~isipid~~ inodorous not inflammable transparent & fluid Body. There seems to be but one Species in Nature except where other Matters adhere & are easily separable. There is a strong Presumption that Water owes its Fluidity to the Quantity of Air combined with it. Water is readily convertable into Earth. It may be reduced under two heads. Simple or Common & Mineral Waters.

The first is universally mixed with some Matters which however are not perceptible to our Senses.

Mineral Waters are so impregnated as to be easily discoverable by our Senses. How ever Common Waters differ considerably to one another.

The most simple Methods to judge of the Purity of Common Water are first to add a Solution of the Lunar Caustic which is precipitated

precipitated by the Vitriolic & Muriatic acids  
as these are generally present in the Earth.  
Second, Sugar of Lead is the most subtle  
Test of any & very few Waters will stand the  
Test, of this we must therefore only judge from  
Plus et Minus. Specific gravity has been reck-  
oned among the Test but improperly as Air  
diminishes it & many Saline Substances  
have the Powers of fixing a large Quantity of  
Air. The more Air the Water contains the more  
Powerful Monstruum it will be. Water is  
derived to us from the Atmosphere.

Rain Water is the purest of all Waters &  
can only be imitated by frequent Distillation.  
It is perfectly pure but still impregnated with  
a Matter capable of Putrefaction. Snow & Hail  
are equally pure only less impregnated with Air  
than Rain Water & consequently a weaker Sol-  
vent. Dew is another Atmospheric Water which  
must be more impure than the former as they  
do not rise high from the Earth - we know

that they are more putrescent than the former.  
Rain Snow & Hail fall in greatest Quantities in the Mountains. These form Brooks Rivers & Lakes & the Waters of these come nearest to the Atmospheric in purity and by running a great Distance they may be impregnated with various Matters. The Waters of Lakes do not entirely stagnate for they have generally some Outlets. small Lakes may however suffer some Change & become more putrescent. River Waters seem to be very tenacious of their purity & are seldom affected by any Impurities communicated to them. Spring Waters have their Rise from the former for as they penetrate the Earth they ~~are~~ afterwards break out again & give us Springs. These are of various Degrees of Purity. Those near the higher Countries seem to be purer than those in the Lower Ground. few of them are however intirely pure.

Mineral Waters have afforded Matter of Inquiry to Physicians & Chemists of all Ages we should therefore expect to find a good Account given of them & their Qualities & Virtues but here we are deceived as those Writers are generally unacquainted with the System of Chemistry. We must therefore proceed on quite a new Plan & endeavour to determine a Priori. To do this we must first consider what Matters may be combined with Water & of what Quality those Matters are. These may be reduced under four Heads -

1<sup>st</sup> Saline 2<sup>nd</sup> Metallic 3<sup>rd</sup> Inflammable 4<sup>th</sup> Earthy.

1 Saline Impregnations. There are no Acids in the Earth to impregnate Water except the O & O the latter is found in Alimentary Salt & in it alone - in a fixed Amm. it is likewise very rarely found - it is likewise present in Sea Water & in some Springs but scarce in its simple State. The Vitriolic

may be present in its separate State but only for a moment as it is so ready to combine with other Matters. The Water which flows out from Coal Mines has more or less of Oil in it which is owing to the Pyrites deliquescent in the Air & therefore is hardly to be called a Mineral Spring.

Alkalines. The Vegetable Alkali is certainly excluded from the Fossil Kingdom & therefore not found in Mineral Waters. Volatile Alkali has not been ascertained to enter mineral Waters in a separate State yet a Vol. Alk: has been obtained from Mineral Waters by accurate Chemists but it seems the Result of a Decomposition of Mepar Sulph: present there Ammoniacs have not yet been discovered in Mineral Waters which seems owing to its easy Decomposition. Fossil Alkali. This seems almost universally present.

Neutral Salts. Consider what has been said above & you will easily see that Glaub: & common Salt are the only Neutrals that

that occur in Water. They are seldom pure but commonly combined together. Glauber's Salt is not so universally present as has been imagined but a combination of  $\text{O}_2$  & Magnesia has been generally taken for it. This gives us sprung Saline Waters as of Epsom in England.

Inflammables. Naphtha is the only fossil oil & therefore we must expect only this. It diffuses itself in the same Manner as Essential Oils in Waters distilled. Sulphur. This cannot be combined with Water in a simple state, but Sulphur combined with Alk: becomes soluble in Water. Sulphureous Waters therefore commonly called stinking Waters, e.g Harrowgate in England are owing to this Alkaline Sulph: the Sulphur however is generally present in very small Quantities & therefore the Virtues of this Water are not perhaps so considerable as has been imagined & their virtues may be rather owing to the Alk: Whether Oils mixed with Alk: forming Soaps are

dissolved in Water & give us saponaceous Water  
is still doubtful. The water called saponaceous  
comes from rather Earthy waters as they  
give us a fine Clay.

Metallic Matters. The most part of these  
are insoluble in the acids present to others a-  
gain are insoluble in their Ox's others re-  
quire heat. The greatest part are therefore ex-  
cluded. Iron & Copper are the most com-  
mon Metallics & the easiest soluble,  
besides they can precipitate all the other  
Metals. Copper is also very rare as it is  
liable to be precipitated by the Iron. Iron  
therefore is present in almost every  
Spring rarely in its natural state per-  
quently combined with Neutral Salts.  
Dissolved in the  $\text{O}$  it should be in the  
State of Green Vitriol but we can hard-  
ly ever obtain it so This is because the  
 $\text{O}$  is generally in a volatile State when

it is readily decomposed & loses its power of holding Iron in Solution. Water impregnated with Copper is found in few places by laying Maps of Iron into their Cores the Copper is precipitated & the Iron suspended hence the Name of Cement waters. It is remarkable that we find no waters impregnated with Zinc tho' it is suspended by the & not precipitated by Iron nor Copper. The White Vitriol is found Native & Zinc is now found frequently in the Earth. Perhaps nevertheless Zinc is frequently present but there is a difficulty in discovering it whereas Iron & Copper are easily discovered. The only true means to know is by taking the Residuum of the Waters fermenting it with Copper & thence producing Brass.

has found Zinc present in one Spring of mineral Waters.

Earths. These are very copiously suspended in Water independent of any Solution in

Acids, especially the Calcareous, & these are entirely insipid only discoverable by their Sediment, e.g, all in the concentrated Waters. Besides this Magnesia is generally frequently found. Alum is likewise found. Chrystalline Earths are undoubtedly present in Waters, at least Waters deposit Chrystalline Matter. But they are never present in such Quantity as to give them a peculiar Quality. Argillaceous Earth is probably present in Water & often in large Quantity, especially in those commonly called vapouraceous Waters. Earths combined with Vitriolic Acids give us several species of Waters.

Earthy Salts. 1<sup>st</sup> Vitriolic Acid with Calcareous Earth which give us Selenites - this give us what are commonly called hard Water. Spurious Glauber's Salt is frequently present. Earths of Alum occurs rarely, as Alum is precipitated by Iron. Fixed Ammonia occurs very rarely & perhaps not at all. For

- the

the Method of Discovering the Constituent Parts  
of Mineral Waters - vide Chemical Dictionary

Of the Medical Virtues of Common & Mineral Waters

We are here reduced to the same Necessity as before. The Facts alleged in Proof of their Efficacy are not to be depended upon, but have been much misrepresented by the Ignorance, Design and Credulity of their Abettors. This will appear still more evident when every Virtue they can boast of has been attributed to common Water itself. The Virtues of Common Water are very considerable. Taken into the Stomach it acts as a powerful Stimulant to the whole System. Hence the Southern Physicians & the Antients used it in bringing on the Crisis in Fevers. On the same Foundation it is of Use in Chronical Cases by giving the Fluids a Tendency to the Surface and in this Way it is one of our best Medicines. It excites Appetite & promotes Digestion by its Stimulant & Solvent Power; & from its Bulk it promotes the Peristaltic Motion of the Intestines. Carried into the Blood a great Deal is to be attributed

to its Bulk by distending the Vessels it will Stimulate the Vascular System & thence keep up & promote the several Secretions. As the Fluids are constantly changing Water will be the best Menstruum for carrying off the degenerated Parts & keeping the remainder pure & fresh. Hence it is useful in the Scurf, phulæ. It thus to be the principal Medical Ingredient in Mineral Waters upon Impregnation however they may become more efficacious. The Acid & Alkaline Impregnations may cooperate with the Water as Stimulants, Antiseptics & Antizemetics and hence promote the Secretions.

I am more at a loss to find out the Virtues of Sulphureous Waters, the Oils & Sulphur being in a too Small Proportion. Taken into the Blood they may determine to the Surface & may perhaps serve to destroy cutaneous Vermin. It is probable that all the Waters that have fixed Air as they are of less Specific Gravity so they may seem

lighter on the Stomach & facilitate Digestion  
more than common Water. The Air that accom-  
panies these Waters seems to be of the Mephitic  
kind & will sometimes intoxicate & bring on  
a Stupor with those that are not accustomed  
to them.

The Chalybeate Waters have all the  
Effects of our Steel Medicines & seem indeed to  
be preferable as the Water they carry with them  
may prevent the bad Effects of their too great  
Astringency —

With Regard to Earthy Impregnations those of the  
petrifying Kind have been imagined to be deleterious  
in generating Calculi but tho' Facts alleged to prove it  
are not ascertained with Accuracy. Imagine the  
Acid of our Stomach would by converting them into  
a Saline State prevent this Inconveniency, nay  
they have been said to be of Service by absorbing  
that Acid.

Having finished the Consideration of the  
Fossil & particularly of the Metallic Astringents,  
we are next to treat of

Vegetable Astringents.

These differ from the Fossile in several material Points.

- 1<sup>st</sup> They are not so quick in their Operation
- 2<sup>nd</sup> Their Action is more confined to the Prime Vice whereas the Metallic Astringents by their Stimulus extend their Effects moreover the System.
- 3<sup>d</sup> They are weaker and in any exigency as in violent Hæmorrhages are not to be trusted to. When we want to bring about a gradual Change in the System the Vegetable Astringents are to be preferred but when we want a strong sudden & certain Astraction they are greatly inferior to the Fossile. They should always if possible be given in Substance for we have no Menstruum to extract their Virtues. We have indeed Waters & Spir: Vin: but the Impregnations are in general very weak. Sp: Vin: likewise very much limits the Dose - for supposing an Ounce of Sp: Vin: would extract  $\frac{3}{4}$  of any Astringent which is allowing largely, there are few Cases in which we

we can give  $\frac{3}{4}$  of Spirituous Tincture without producing worse Effects than those we intended to remedy. There is a Remark of Dr. Alston late P.M. M<sup>r</sup> at Edinburgh that the Peruvian Bark remains a long Time on the Stomach in a solid & it is probable other Vegetable Astringents do so too. Dr Cullen says he has seen Bark thrown up unchanged 8 Days after its Exhibition, but in this Case the Stomach must have been in a disordered State & we find Food thrown up unchanged after it has remained a day or two or even longer in the Stomach.

Vegetable Astringents taken in Substance remain longer on the Stomach than when taken in Solution - hence their Virtues will be more compleatly extracted & will prove more serviceable. As Vegetable Astringents are longer in the System before they are dissolved & this is one Reason why their Operation is not so quick When given in Solution they seldom produce such considerable Effects as when given in -

Substance. They pass off more quickly and are apt to prove Purgative. They are likewise in this State to undergo a Fermentation by which their Astringent Virtue may be destroyed. As the Fossil Astringents are not subject to this Process & even resist it they are not liable to be changed in the Prima<sup>e</sup> V<sup>a</sup>e.

Vegetable Astringents should be given in Substance in Form of Powders Pills or Boluses. As by the long continued Use of them we are apt to induce Costiveness we may to obviate this combine some gentle Laxative with them. Rhubarb is one of the best as it has a Purgative conjoined with its Astringent Quality. We should be careful not to employ such Purgatives as tend to produce Relaxation. Flowers of Sulphur, Aloes, Calomel where a few Grains will answer the Intention are the best we can employ.

We now come to treat

Of Particular Astringents

The Operation of these you will understand from what has been said of their general Effects. I shall only take Notice of such as have been recommended for particular Purposes. — Dr. Cullen has treated this Class of Medicines so amply that you will not be at a loss if I should even be guilty of some Omissions.

Pentaphyllum or Cinque Foil is a simple & agreeable Astringent but a very weak one. Diacorides recommends a Decoction of it for the Tooth Ach & other Astringents have been employed for the same Purpose. As it is but weak no great Effects are to be expected from its agreeableness it may be combined with others & prove serviceable in relaxed Habits. It may be given in Infusion & used by the Patient as a constant Drink. Tournfort assures us that he cured a Fluor Albus with the expressed Juice of the Cinque Foil. This Disorder as we have said before is frequently owing to a general or Partial Relaxation

and the Cure is to be attempted only by gentle Astringents which restore Tension to the relaxed Parts.

Roses are sometimes employed in Medicine. They are a weak Astringent of an agreeable Odor & Taste. An Infusion of Red Roses sweetened with Vinegar will afford an excellent Drink in Putrid Fevers and Dysenteries much more agreeable than the nauseous drinks generally employed. This Infusion may also be employed to prevent the Return of Hemorrhages.

Tormentilla is a very pure Astringent & for its Efficacy deserves to be placed at the Head of Vegetable Astringents. In Italy where it grows plentifully it is used for the Tanning of Leather. It was employed for the Cure of Intermittents before the Peruvian Bark was discovered & its Virtues in this Case were known in the Time of Hippocrates. It was likewise employed in all those Cases

Cases where the Peruvian Bark is now used with superior Efficacy. The Indians on this Continent use in the same Intention a Plant of the same Nature with Tormentilla—the Geam. For the Cure of Intermittents the Tormentilla was generally combined with Bitters, for it was known that Astringents combined with Bitters were highly Serviceable in this Disorder, long before it was discovered that Nature had formed this Combination in the Peruvian Bark. It has been recommended from Time immemorial for the Cure of Diarrheas & Dysenteries. It will no doubt be as proper as any other, where Astringents are serviceable in these Cases. They are however not so frequently useful as is commonly imagined. We shall have a better Opportunity of inquiring into the Use of Astringents in those Cases hereafter & will therefore defer it till then.

A Decoction of Tormentilla has been recommended to prevent Abortion, this Nine

Six times out of Ten is owing to Relaxation & Irritation of the Uterus. A Person who has suffered Abortion from this Cause should immediately after Conception be put upon a Course of some gentle Astringents. The Metallic Astringents are not to be employed for by their Stimulus they will increase the Impetus of the Blood & of consequence increase the Danger of Abortion. The Vegetable Astringents are to be preferred. The best Method of exhibiting them in this Case is in an Infusion in Cold Water 3 lbs of Tormentill may be macerated for 24 Hours in a Quart of Cold Water for this extracts the Virtues of the Vegetable Astringents. This I know from some Experiments made by myself & some of my Contemporaries at Edinburgh. Five or Six of us formed ourselves into a private Society, solely for the purpose of inquiring into the Virtues of different Medicines and

the best Manner of preparing them. We amongst others tried Astringents & found that their Virtues were best extracted by cold Infusion. We tried all the different Astringents we could lay our Hands upon or that where used in Medicine & found the Result always the same. Infusion in 24 Hours extracted their Virtues more powerfully than any other Monstrum. This I do not recollect to have seen taken Notice of by any Author. It is however a fact which I would advise you to pay a particular Attention to in Case you employ any Vegetable Astringent & cannot give it in Substance.

Rubia or Madder is a very weak Astringent & as such it might pass unnoticed. It deserves however to be mentioned on Account of another Matter it possesses. It has been found to colour the Bones of those Animals that feed upon it, red (the Callus of a broken Bone is not tinged). It appears that the Bones

of young Animals are sooner tinged than those of an Old one; that the Callus Ligaments Tendons Nerves & indeed every Part but the Bones were not colored by it. Mr. Leveret a famous Man Midwife of Paris recommends Madder for the Rickets & Leprosies as that he has employed with Success. In this Disease however Nature generally performs the Cure & we trust more to the Cold Bath to assist her than to any other Remedy. I can not imagine how a Substance which is found to render the Animals that feed upon it fleshly & heavy should have any Effect in this Disease.

Madder has been recommended for the Cure of the Jaundice but it possesses no Virtues by which it may effect a Cure in this Disease. It has probably been employed in this Disease with many other Substances merely from its Color. We now know that the Jaundice is generally owing to Concretions in

in the Biliary Ducts by which the Passage of  
the Bile into the Duodenum is prevented a  
Regurgitation is produced & an Absorption  
of that Fluid into the System takes place.  
The Disorder generally goes off suddenly  
from the Concretion passing into the Intes-  
tines of itself & being evacuated by Stool. The  
Medicine which happens to be given at this Time  
is generally thought to have performed the Cure.  
The Cure depends on Solution or Evacuation.  
Hitherto we have discovered no Medicine that  
will dissolve the Concretion - we must therefore  
depend intirely upon Evacuation. This is to  
be attempted by Emollients, Emetics & Laxa-  
tives. By these we produce Relaxations in  
the Parts & compress the Liver by which the  
Expulsion of the Concretion into the Intestines  
is promoted. Dr. Schultz <sup>P.M.</sup> at Halle recommends  
a Decoction of Madder in the Disease called  
Gutta Rosacea or a Red pimply Face.  
Bistorta is a simple & strong Astringent

It has been recommended from the Beginning  
of Time in the Tooth Ach & for strengthening  
& fastening loose Teeth. Many other Astring-  
ents have been recommended for the  
same Purpose for which they will answer  
much better than the Dextigices commonly  
made use of. As the soundness of the  
Teeth depends in a great Measure on the  
purity & soundness of the Gums there is no  
Doubt but any moderately Astringent  
Application as washing the Mouth with  
a Decoction of *Bistorta* or even chewing  
the Root by rendering the Gums firm and  
sound & by promoting the Circulation in  
the finer Vessels will contribute to fix  
the Teeth firmly in their Sockets will  
give them a white Color & if any thing  
will have this Effect will preserve  
them from Decay.

*Lapathum* or *Dock* Kind - of this there  
are various Species. They have all been  
recommended

recommended in the Scurvy & in cutaneous Foulness & Eruptions which were thought to be owing to a scorbutic Habit of body. The Stich has been thought to be owing to this & the Dock has been employed for the cure of it. Thus we find it is an Ingredient in the Unguent Antipossum of the Edinb:

Diss: We now know that the Stich is owing entirely to a Species of small Insects called by Linnaeus Atomes. They are the same as those found in damaged flour & other damaged Vegetables. It is entirely cuticular & is to be cured only by such Applications as come in immediate Contact with the Numin. Common Dock bruised or infused in Milk or Cream for 24 hours Applied externally is a domestic Medicine frequently employed for the cure of this Disease & I have been assured that it seldom or never fails of Success.

Whether Ringworms are owing to the same cause as the Stich is doubtful. They

may be as effectually cured by the expressed  
Juice of the Dock as by any other means.—

*Radix Britannica* one of the Dock  
Kinds has been much recommended in the  
Survey. Muntingius who wrote a Tre-  
atise on the Virtues of this plant tells us  
that the army of the Emperor was in  
great Danger of being destroyed in Hol-  
lands by the Survey & that the greatest  
part recovered by the use of this Remedy.

Mr Goldin formerly Lt Governor of  
New York gives us an Instance of a  
Gentleman afflicted with ill condi-  
oned Ulcers in his Throat for which  
he had taken the Advice of different  
Physicians to no Purpose. He was at  
last perfectly cured by an Indian. He  
drank plentifully of a decoction of the  
*Radix Britannica* & also used it as a  
Gargle. It is very serviceable in all  
ill conditioned Ulcers & in those Ulcers  
commonly

called Bacetie of the Legs & other parts of the body. These ulcers will often baffle the efforts of the most skilful Physicians & after they have been disengaged as incalculable it sometimes happens that some old Woman undertakes & even performs a cure. The Remedy they generally employ is the common Dock which they apply externally as a Fomentation to the part & at the same time make the Patient drink plentifully of a decoction of it. The Dock is possessed of considerable Stimony with its Astringency. It acts not only by its Astringent Qualities giving Tone to the Parts, but also by its Stimulus it excites the Action of the Vessels of the part. It likewise increases the Evacuation by Urine but principally by the Skin by which the too great Determination of the fluids to the Ulcer is taken off. The use of it should be persisted in for a length of Time -

Filices or Fern kind were formerly much em-  
ployed in Medicine but are now seldom  
used. The Felix Mas or Male Fern was  
recommended by Diascorides for the cure  
of Worms in the Dose of 3ss. I have ac-  
cordingly in my different Courses of lec-  
tures amongst the Antihelminthica enum-  
erated the Fern tho' from its being  
never employed I concluded that it  
possessed no considerable Virtues. It has  
of late been again introduced into prac-  
tice. Madam Neuffer had acquired  
great Reputation for a supposed Speci-  
fic she possessed for the cure of the  
Taen-worm. She at last obtained a  
premium from the King of France for  
the Discovery of her Secret which was  
found to be the Root of the Male fern  
in Powder. Thus has the Medicine  
been again introduced into Practice  
under favorable Circumstances & it

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is probable that Mad: Neuffer or the per-  
son who had discovered the secret to her  
had learned it from some old neglected  
Herbal. —

Capillus Veneris has been recommended  
on account of its pectoral Virtues & has  
been said to cure consumptions; but it  
is now with propriety totally neglected.

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